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The Transmission of Typhoid Fever, and Its Prevention by Vaccination.

DR. ALEXANDER LAMBERT, N. Y.*

The extent to which typhoid fever is prevalent is often taken as a fair criterion of the development of sanitation in a community. This dread disease may be said to stand as a terrible punishment for the sanitary sins of a community. It punishes both the sins of omission and of commission, and the laws which govern its occurrence are as inexorable as fate.

Since men have grouped themselves together in masses, whether in cities or in towns, or in armies mobilized for peace or for war, tyhpoid fever has followed as a relentless curse whenever certain sanitary precautions have been neglected or omitted. On the purity of the water which is brought to a community, on the completeness of its drainage and sewerage, and on the absolute separation of the pure intake and the polluted output, depends the absence or prevalence of big typhoid epidemics. This fact was long ago recognized, and its realization has caused many communities so to regulate their water supply and their sewerage as to reduce typhoid from a widely prevalent endemic disease, to one of infrequent occurrence. In spite of all precautions, however, there have been certain more or less constant endemic occurrences of this disease, the causes of which until recently have remained unknown.

In the last few years it has been observed that a certain percentage of those who have suffered from typhoid may harbor continuously for many years the germs of the disease in the intestinal tract, becoming, therefore, a constant source of danger in spreading the infection, and a menace to their environment. In armies it has been shown that the water-born typhoid could be excluded, yet through contact one with another enormous numbers of men have succumbed to the disease. Until the bitter experience of the Spanish-American war, the extent of this contact disease in armies was but

*Read before the South Carolina Medical Association meeting in Charleston, S. C., April 19, 1911.

little understood, and even since then has been too little appreciated. A study of the recent knowledge gained in military sanitation gives one both a very striking appreciation of the menacing possibilities of the typhoid carrier when all rules of sanitation have been thoroughly observed, and also the means of judging accurately the value of vaccination or other preventive measures among large masses of men.

The United States offers such widely differing conditions in the density of its population and the kind of purity of waters that are supplied to its various towns and cities, that if we study the typhoid death rate in the various sections of the country, we can appreciate certain factors in the transmission of typhoid fever that are well worth considering. Fulton* some years ago drew attention to the fact that while in cities great epidemics would at times sweep off hundreds of the inhabitants, yet the steady, persistent endemic exercise of typhoid in the rural communities present year in and year out, claimed in the end a far greater toll of lives. He also showed that in the States in which the urban population was greatest, the death rate from typhoid was the lowest, for in five States in which the city population was 70 per cent. of the whole, the average death rate per 100,000 was 25. As the rural population increased in the States and the city population diminished, the death rate from typhoid fever steadily increased until in those twelve States in which the rural population averaged 95 per cent., the average typhoid death rate was 67. Comparison between the city and country districts of individual States show in general the same relation, although in certain years there may be exception to this last statement.

The late Colonel Waring was the first one to call attention to the fact that typhoid is peculiarly a disease of the country, rather than of the town. Fulton further showed that the larger the population of the cities, the smaller the typhoid death rate, and dividing the cities of this country into ten classes on a descending scale, we find that the typhoid mortality rises somewhat as the population diminishes. Thus the lowest mortality in the census of 1900, that of 24 per 100,000, fell on the three cities having a population of more than a million, New York, Chicago and Philadelphia. Not one of these cities is watered or sewered in a thoroughly modern way. One of them, at the time this census was taken, was notoriously bad in respect to its water supply. Considering the tenth class of these groups of cities, which includes 119 towns with an average population of some 12,000 inhabitants, the typhoid mortality was 45 per 100,000. Thus we see that in general the smaller communities are more severely infected with the disease, and that its propagation is from country to town, rather than from town to country. This is probably due to the fact that in the more populous communities greater care is taken in the disposal of sewage, as the more populous a community the more it is forced to observe the laws of sanitation, and the more are individuals compelled to realize the necessity of a communal interest in so doing. The realization that the more scattered the community the greater its liability to endemic occurrences of typhoid, brings us to the consideration of the care of the individual typhoid patient, and the disposal of the dejecta. In direct ratio to the care given to the disinfection of the individual case, is the spread of the disease held in check or sent broadcast, and two traits of our human nature have done much to prevent a better control being exercised in this direction.

It is a curious fact, but one with which we are familiar, that most families feel that their sick members cannot be a source of contagion to others, although this same family will rightly resent and fight against

*Fulton Journal of American Medical Association, 1903.

contagion coming from any outside source, and it has long been recognized that the honor of the family well, is identical with the honor of the family itself, and any insinuations against its purity is resented as an insinuation against the family. Such insinuations are followed by resentment, and such resentment has prevented in many communities the proper observance and the proper enforcement of laws of sanitation that might otherwise have been carried out.

Regarding the country as a whole, it is noticeable that climate seems to influence the prevalence of typhoid fever. Typhoid fever is more prevalent in warm countries than in cold, but at the present time it is not possible to say how much is due to the effect of temperature, and how much to environment. Typhoid in the United States increases considerably from north to south, and on the Atlantic and Gulf Coasts, from Maine to Texas, this is quite noticeable, for in the North Atlantic coast region the percentage of typhoid to the total number of deaths was: rural, 1.17 per cent.; and urban, 1.29 per cent., with a steadily increasing ratio, until in the Gulf Coast region the ratio is: rural, 6.16 per cent., and in cities, 2.38 per cent. These figures further emphasize that in cities the increase in the typhoid death rate is not quite double the amount, but in the rural districts it is almost six times as great.

Comparing the mortality statistics of the whole United States with those of the countries of Western Europe, we find that in the United States the proportion is 47 per 100,000, and we do not find this equalled in those countries, even in medieval Spain, where the portion is 45.8 per cent. The older civilizations have learned their lesson, but in this country typhoid still stands as one of the great preventable diseases which we do not prevent.

What proportion of the cases in the United States are water-born is not easy to say. Kober* claims that they form 80 per cent. of the total number. It is interesting to notice the variations in the death rate in connection with the different kinds of water supplies that are brought to the various cities. Those cities having as a source of supply the pure mountain springs, with no possibility of pollution, show the lowest death rate, namely, 4 per 100,000. Properly filtered water, even though originally polluted, comes next, with from 9.6 to 16.2 per 100,000; ground waters and large springs, wells, etc., are in the third class, with typhoid death rate of 18.1; surface waters, with large impounding reservoirs and water sheds protected against pollution, are next, with ration of 18.5; then comes the normal large rivers in which the pollution is supposed to have vanished through the agency of time or sedimentation or dilution, also 18.5; then upland streams with small lakes with limited water sheds more or less inhabited, with ratio of 19.3; then large lakes more or less subject to pollution, with typhoid mortality rate of 33.1; then public and private wells in populous districts with ratio of 45.7, and lastly rivers which are known to be polluted, with ratio of 61.6. This last is an inexcusably bad water supply, and naturally shows the highest death rate. These differences are not accidental, for where the streams have been polluted and the water properly filtered the typhoid death rate has coincidently fallen from over 100 per 100,000 to less than 30.

Closely connected with the water supply are the cases of typhoid fever which occur through infected milk. Milk may of course be polluted after it comes from the country to the city, or it may be infected with typhoid before it leaves the country for the city. Typhoid epidemics from infected milk are liable to occur in any city, especially as they often arise from the typhoid bacillus carrier and, of

*Kober American Journal of Medical Sciences, November, 1909.

course, are likely to arise at any place in the country where typhoid prevails, where there has been carelessness in the disinfection. What percentage of typhoid fever cases come through the infection of milk it is impossible to say, but the experience of Washington, D. C., a few years ago is of great interest in this connection. Washington, as you know, has its water supply from the Potomac through excellent filter beds. In spite of this excellent water supply, however, there was a varying but steady and persistent recurrence of typhoid fever in the summer months, and this occurred when the bacterial content of the Potomac water was at its lowest. In a very interesting investigation it was found possible to account for about one-half of the cases of typhoid in 1907. Of these 9 per cent. were due to infected milk, 19 per cent. to contact with other cases in the city, and 15 per cent. imported from outside. The noticeably large number of children ill with this disease in Washington during this period pointed also to a polluted milk supply.

To control the purity of the milk supply of a great city is a problem of great difficulty, but the demand for clean milk which is steadily growing in large cities, and the realization of the diseases which follow the use of unclean milk, is becoming more and more a matter of general knowledge to the public at large, and public opinion will in the end control this source of pollution in the cities. It must accomplish this, it is true, by a process of education of the rural communities from which it draws its milk supply, but the accuracy with which a given epidemic from milk may be traced has come to be a matter of such common knowledge that the campaign of education that has been going on the past few years has borne fruit, and the milk supply of our large cities has been greatly improved.

When one realizes that the milk supply in New York is drawn from six different States, one realizes the wide range of territory that the necessary sanitation must cover.

Another factor, particularly in rural communities, but unfortunately also true of the outlying districts of our large cities, is the pest of the common house fly. As is well known this fly breeds chiefly in horse manure, but can, and often does, breed in human excrement. In unsanitary places an enormous number of flies move constantly from unprotected food in the house, and it is small wonder, if there is any possible chance of infection from typhoid, that these insects do not carry it. Dr. Alice Hamilton* some years ago showed what a grave source of danger in typhoid fever the common house fly was. In an epidemic of this disease in Chicago, which apparently had its origin in a contaminated water supply, it was noticed that in certain areas in the city the disease was much more prevalent than elsewhere, and it seemed certain that a further cause was at work than the contamination of the water. Investigation showed that the localities where the disease was most prevalent were those in which the sewerage was of the most primitive kind, simply country outhouses which often had overflowed into the cellar or the yards. The people living in these sections were poor and ignorant, and in several instances whole families, one after another, came down with the disease. Flies in enormous numbers infested these houses, often swarming over the food, and from flies taken in these neighborhoods, both inside and outside the houses, the typhoid bacilli were cultivated.

In the Spanish-American war in some of the camps, flies seem to have played a not inconsiderable role in the spread of this disease, the transition from the unprotected latrines to the kitchens being easy.

One may readily conceive also of the

*W. S. Thayer, Maryland Medical Journal, September, 1906.

possibility under certain circumstances of uncooked vegetables being a source of infection. It has been shown that plants growing in infected soil, in pushing their leaves through the soil to the air carry the typhoid bacilli upon their leaves.

Prior to the Spanish-American war it was generally believed that when the water and food supply of a community were free from pollution and the sewerage sanitation was sufficient, that typhoid infection had been guarded against. This, however, has been proved fallacious. In 1898, in the camp at Jacksonville, it was noticed that the water supply for the camp was the same as that for the city near the camp. Typhoid was not prevalent in the city, but among the troops it was exceedingly frequent. In fact, there were 20,738 cases in the American army, which was practically one-fifth of its strength, and the 1,580 deaths which occurred from this disease was 86 per cent. of the entire mortality of that war. At the conclusion of the war Drs. Walter Reed, Victor C. Vaughan and Edward C. Shakespeare were constituted a board of officers to investigate the causes of this condition, and also the extensive prevalence of typhoid fever in the various military camps of the United States. This board, in a most complete report of the epidemiology of typhoid fever, stated its belief, "that with typhoid as prevalent as it is in this country the chances were that if a regiment of 1,300 men should be assembled together and kept in a camp, the sanitary conditions of which were perfect, one or more cases would develop." This disease prevailed in a series of company epidemics, each one having its individual character. It was further noted that a regiment of troops did not lose the infection by changing its station, but the disease was carried from place to place by the men, in their bodies, in their clothes, and in their bedding and tentage. This board further showed that 65 per cent. of all the cases of typhoid were caused by contact infection one from another. It was noticed that in a tent where one man became infected, in a short time others of his tent mates came down with the disease. The able-bodied in helping the ailing would become infected through rolling the blankets or caring for the clothing, or through caring for those beginning to show the symptoms of the disease, but the fact that 13,000 cases, or 65 per cent. of the typhoid, occurred through contact at this time is a fact that is but little appreciated, even today. Our experience in 1898 was not an unusual result, considering the knowledge possessed at that time, for in the Civil War, in the Northern army alone, there were 80,000 cases of typhoid. In the Franco-Prussian war there were over 73,000, with 8,700 deaths among the Germans alone, and, in fact, as Russell points out, 60 per cent. of the total mortality was due to this disease. In the war of the Boers with the English there were 31,000 cases of typhoid, with 5,800 deaths, and the great morbidity due to this disease was a very serious handicap to the efficiency of the army. Not only in times of war has typhoid fever been a scourge to the armies. In Germany it was noticed that after every manœuvre where the troops were quartered in the villages, typhoid fever was brought back into the garrison. In Southwest Germany, Alsace and Lorraine, which is an important part of their mobilization area, typhoid was very prevalent. Koch and his assistants were sent to see if some means could not be found whereby the ravages of this disease could be checked. In studying the situation it was found that convalescents from typhoid retained typhoid bacilli in their stools many weeks longer than was supposed, and that in about 25 per cent. of the patients, the bacilli were also discharged in the urine towards the end of the disease and during convalescence. This added new sources of danger, for the general condition of patients was such that they could leave the hospital and go to their homes long before they ceased to

be a danger to the community. It was further found that many people do not cease to be carriers of typhoid bacilli, and from this cause many small epidemics have arisen. It was also found that outside the temporary convalescent carrier of the bacilli there were people who, for years after recovering from the disease, discharged virulent typhoid, and were chronic typhoid bacilli carriers. One such patient gave a history of having had typhoid 52 years previous. This fact of the existence of chronic typhoid carriers has thrown a new light on the persistence of this disease in many communities, and explains the recurrence of many small epidemics and infections which started like an endless chain and had widespread ramifications. Since these typhoid carriers were reported they have been found in all countries, and in a recent review by Grim* of a report by Ledingham, of England, some very interesting facts concerning the typhoid carrier have been brought out. These typhoid bacilli carriers are classified in different ways by various writers, the most comprehensive classification being that of Saccaqupée, which is grouped as follows:

1. Precocious carriers. Those carriers in the incubation stage of the disease.

2. Persons who have recovered from typhoid, but who continue to eliminate the bacilli, and

Sub-group "A"—Convalescent carriers who cease eliminating bacilli before the end of the third month.

Sub-group "B" — Chronic carriers, those who eliminate the bacilli for an indefinite period, and

3. Paradoxical carriers, those who have never had even the symptoms of typhoid fever, but who eliminate bacilli for an indefinite period.

For ordinary purposes, two groups are sufficient: The transitory carriers, who cease eliminating bacilli before the end of three months, and the chronic carriers, those who eliminate the bacilli indefinitely. As to the frequency of carriers among those who have had typhoid, the percentage varies greatly. From the reports of the different observers, the temporary carriers seem to vary from about 2 per cent. to 11 per cent., while the chronic carriers vary from about one-half of one per cent. to 11.6 per cent., but it is a noticeable feature that the more carefully the work has been done, and the better the bacteriological technique of the observer, the higher the percentage of chronic carriers becomes. When we also consider that the yearly number of typhoid patients in the United States is some 350,000, we realize the great possibility for endemic infection, if we add to our possible sources of contamination 3 per cent., or 10,000 chronic bacillus carriers every year. Women more frequently become chronic carriers than men, in the ratio of about 5 to 1, although in the temporary carriers the ratio between the sexes is about even. The greatest majority of chronic carriers is among persons of middle age, between 40 and 45 years. The greatest majority of transitory carriers are among the young, the largest percentage occurring between the ages of from 5 to 10 years. This is well seen from the statistics of Frosch, who found in 6,708 cases of typhoid, that 310 became carriers, 144 transitory, and 166 chronic. Females formed 80 per cent. of the chronic carriers, and 60 per cent. of the transitory. Children under 15 years of age formed only 4 per cent. of the chronic carriers, but 35 per cent of the transitory. Even small babies may be carriers without going through an attack of typhoid, and may be the means of starting a serious epidemic.

It is of interest also to consider from what time a person infected with typhoid fever becomes a menace through his dejecta to his environment. By studying a large number of contact cases in which the sources of infection were known, the period when the secondary case received its infection could be made out. It was

*Public Health Reports No. 38. R. M. Grimm.

found that the incubation period of typhoid averaged about 16 days, and that a certain number of patients began to excrete typhoid bacilli in the first week of their incubation period, an increased number in the second week, and that during the first week of the disease the greatest number of secondary cases were infected by primary ones. There is a slight diminution in the second week of the disease, and this continues down through the tenth week. The precautions which are taken to prevent the spread of the disease as soon as it is reallly recognized, tends to diminish the number of succeeding infections as the weeks go on, but it is rather a startling disclosure to find that the patient who is about to have typhoid may be a source of infection in the incubation period of the disease before he realizes or anyone recognizes that he has, acquired it, and is about to come down with it. As is already known, the elimination of the typhoid bacilli in the dejecta, even in those suffering from the disease, is not constant, but the greatest number are probably eliminated in the third week. The bacilluria usually does not occur until after defervescence, or during the late convalescence. This also may continue as a chronic cystitis, and prove an equally prolific source of infection as a chronic carrier. This bacilluria, however, does not usually continue for more than a few weeks, and tends often to disappear spontaneously. Simonds has collected together a report of epidemics produced by chronic carriers, which shows that 51 such carriers were the cause of 275 cases in others. Forsch* has shown that in 1906, in Strasbourg, that of 2,080 sick with typhoid, 978, or 47.7 per cent., were traced to their source, and of these, 746 were from so-called contact typhoid carriers; 49 of these cases were caused by bacilli carriers. Thus 2.4 per cent. of all cases, or 5 per cent. of those, the sources of which were discovered, were due to bacilli carriers; from 9.5 per cent. to 20 per cent. of other statistics have been shown to be due to carriers.

As to the origin of this condition there seems to be some ratio between the occurrence of gallstone disease and chronic typhoid carriers. The ratio between sexes is about the same, women greatly predominating in a ratio of about 3 or 5 to 1. Klinger reports that in 13.6 per cent. of 220 chronic carriers could a definite diagnosis of gallstones be made While this corresponds rather closely to the 10 per cent. of gallstone cases from all sources that occur to humanity in general, it certainly does not give a sufficiently satisfactory percentage to account for all the cases of typhoid carriers. Looking at it from another point of view, Bader* has recently shown that in cases of gallstone disease, 9 per cent. gave a definite history of previous typhoid. There is no question that typhoid bacilli are excreted by the liver into the bile and passed through the gall bladder, and that cholecystitis and the resulting cholelithiasis are not uncommon from typhoid fever, and the typhoid bacilli have been definitely found in gall bladders years after an attack of typhoid. It is highly probable that in all typhoid patients typhoid bacilli during the progress of the disease are present in the gall bladder, but only in a certain percentage do they set up a sufficient reaction to cause a definite inflammation, and while in all probability the bacilli may remain in the gall bladder and ducts without symptoms for long periods, the percentages quoted of gall bladder disease in the chronic carriers is not sufficient to account for but a small proportion of them. The bacilli must, therefore, remain in some portion of the intestines, and it may be some lack of resistence in the patient is sufficient to protect the individual against further infection, yet the defensive mechanism of the

*Simonds, American Journal of Medical Sciences, August, 1910.

*Progressive Medicine, March, 1910.

body be not sufficient to overcome those remaining in the intestinal tube. One patient, coming into my wards in Bellevue, gave a history of what he called three attacks of malarial fever since his typhoid fever three years previous. An examination of his stools and blood cultures showed practically the pure culture of typhoid bacilli in both. He ran a fever for but six days. The bacilli disappeared from the blood after a week, but remained in his stools, and this patient was undoubtedly a chronic carrier who, in periods of great exhaustion from overwork, would become infected and suffer from a short attack of about a week or ten days from an abortive typhoid and then go on again, but was never able to clear out his intestinal tract from the typhoid bacilli. This patient was a young and vigorous man.

At present, the pathogenesis of the carrier state must be put down as unsolved. The treatment of this condition at the present moment is also unsatisfactory. Many drugs and methods of treatment have been tried, and all found wanting. Spontaneous cures have been reported, and some cures after a year's treatment have also been reported, but with the known peculiarity of the intermittent discharge of the typhoid bacilli, these cures may or may not be true, and we must reluctantly admit that the treatment of these patients is also an unsolved problem. The unsolved factors of this problem of typhoid carriers, that of the inability to discover the causes of this state, and the inability at present to solve the riddle of their treatment, together with our lack of knowledge of who is a typhoid carrier in any given community, make these unfortunates a constant menace to public health, and one of no mean proportions. This is particularly true in the hygiene of military camps, and it would seem that this knowledge of the typhoid carriers has solved the riddle of the constant appearance of typhoid among apparently healthy masses of troops. It was to counteract and prevent typhoid epidemics arising from this source that the English and German authorities turned to preventive inoculation as a means of defense. Among the very earliest animal experiments in immunity were those with typhoid bacilli, and it was shown at that time both by Pasteur,* and as early as 1886, by Frankel & Simmons, that very small non-lethal doses of typhoid bacilli would protect rabbits against subsequent fatal doses. This work was further carried on in laboratories until Pfeiffer's reaction was obtained. The details of this is not necessary to discuss, but the results obtained by these tests proved conclusively, in both animals and men, the possibility of producing a high degree of immunity against typhoid by the use of killed cultures. Pfeiffer and Kolle, in 1896, made the first actual test of immunization of men for the purpose of protecting them against typhoid, and studied the specific changes in the blood serum. They showed that the same antibodies were produced as the result of inoculation, as were produced during clinical typhoid, and that the quantity of aglutinins bacteriolycins and oposonins, seemed to be even greater after vaccination than after clinical typhoid. It is, therefore, not unreasonable to expect that the immunity offered by vaccination should last for a considerable period. A. E. Wright, who also in 1896, before Pfeiffer and Kolle had made their injections in men, had also injected two men with killed typhoid bacilli, and in the next year he published the results of anti-typhoid inoculations upon eighteen men, and became convinced by this experiment that the method was practicable, and that it gave sufficient protection to make it worthy of adoption in the army. In 1898 Wright introduced his preventive inoculation in the British army in India with encouraging results. These inocu-

*Russell, New York State Journal of Medicine. December, 1910.

lations were continued in South Africa during the Boer War, when typhoid fever was crippling the British army. Some 400,000 doses were furnished, and it is supposed that 100,000 men were inoculated. Some were inoculated before leaving England, others on the transport, and many more in the field. No complete returns of these have ever been given, but Wright collected some figures which cover the returns of 19,069 men, and he considers the occurrence of the disease to be diminished about one-half, and the mortality even more. The reports from the various military organizations in these statistics are so at variance with each other that they have made many of the medical profession skeptical of the value of the procedure, but with the organization of an army badly crippled, as was the English army at this time, and with the difficulty of collecting statistics during times of war, and with the knowledge since obtained that in Wright's original method of preparing his vaccine, the technique was such that some of the vaccine at times became overheated and thus weakened, would explain the unsatisfactory reports concerning his statistics. The German colonial army in Southwest Africa, during the Hereros campaign from 1904 to 1907, were the next ones to try these preventive inoculations, with the result that the number of typhoid caases fell from 226 in 1904, to 43 in 1907, and, while vaccination cannot be claimed to have been the entire cause of this reduction, it does seem to have been the greatest factor in bringing it about. Among the 16,496 men in the expedition, there were 1,277 cases of typhoid. Among the uninoculated the percentage of cases was 9.84, while among the vaccinated it was only 5.9 per cent., or about half as many. The value of the vaccination was also shown in that the light cases greatly predominated among the vaccinated, and while the moderately severe cases were present in about the same percentage, the very severe cases were distinctly fewer in the inoculated than in those who had not received the vaccination. The percentage of fatal cases was 6.4 per cent. for the inoculated, and 12.8 per cent. for the uninoculated.

Since 1904 Leishman* has continued the vaccinations against typhoid in the British army, and the last published statistics from the English troops in Indian, covering a period of observation from three and one-half years in the first regiments, to four months in the last, show for the inoculated 10,378 men with 56 cases of typhoid and 5 deaths, which is a mortality of 8.9 per cent. For the non-inoculated, living under the same conditions, there were 8,936 men with 272 cases of typhoid and 46 deaths, that is a percentage of 16.9 per cent. mortality. The authorities are pushing the vaccination actively, and are enthusiastic over the remarkable diminution in the disease in the European troops during the past year. The inoculation against typhoid has become distinctly popular, and regiments in which less than half the personnel are unprotected against typhoid are not considered by the higher military authorities as properly prepared for field service. As it is the ambition of every soldier to be ordered to the front, and as such an order is now somewhat conditioned on his being vaccinated against typhoid, there is no dearth of volunteers. Many regiments have nearly 100 per cent. of their personnel vaccinated, and most of them over 50 per cent. The reports of the German and English armies made such a favorable showing in the possibilities of the diminution of both the occurrence of typhoid in the army and in the reduction of its death rate, that two years ago an army board called to consider the matter in Washington, recommended typhoid inoculation in the United States army. This was at first to be tried especially among the hospital corps and engineers, for these two branches of the service have heretofore

*Russell, *ibid.*

shown the highest morbidity of the disease.* The inoculations were to be voluntary and were to be offered to the entire army, but if war developed they could be compulsory.

The following is a recent experience among the engineers: "On June 14, 1910," I am quoting from Major Russell's article, "ninety-two men of Company A, First Battalion of Engineers, were vaccinated. On June 24th the company left Washington, D. C., for Gettysburg. The total strength of the company was 118 men. There were two others in command who had had typhoid. There were, therefore, 24 men unprotected by either a previous attack of the disease or by vaccination. After returning from the manœuvres on August 11th, within 10 days 25 per cent. of the unvaccinated were down with typhoid fever, while no cases occurred among those that had been vaccinated." This is certainly a striking incident, and the difference is too great to be a mere coincidence. Russell reports, further, that in December last, among 12,644 persons who had been vaccinated, there had been five cases of typhoid with no deaths. All of these were of very mild type. During the same period there occurred in the remainder of the army 418 cases of typhoid, with 32 deaths. The rate per thousand among the vaccinated is 0.39, while in the army at large, it is nearly ten times as high. In a general way it may be said that about one-seventh of the army was vaccinated at this time, and had five cases with no deaths. In the other six-sevenths of the force there had not been six times as many, that is, 30 cases, but 418 cases, with 32 deaths.

The surgeon general informs me that the entire command of troops now mobilized in Texas have been inoculated, and up to the present time there are no cases of typhoid in the camp. These figures certainly justify the procedure and give every hope that at last there has been found an accurate means of preventing the scourge of army camps similar to that which occurred in 1898 with typhoid fever. Not only is the efficiency of the army enormously increased, but the death rate among the young vigorous men of the population is also enormously reduced. France, too, has realized the value of this anti-typhoid vaccination, and the subject has recently been exhaustively considered before the French Academy. Their conclusions at the session of February 28, 1911, were as follows: The voluntary use of anti-typhoid vaccination should be recommended as a practical and rational means of diminishing the frequency and gravity of typhoid fever in France and in the colonies. This recommendation is addressed to all those whose profession, usual or incidental, conditions of food or habit, whose daily or frequent relations with persons or bacilli carriers exposes them to direct or indirect contagion. The French government has further included within its army estimate the money necessary to equip a vaccine laboratory and sustain it.

I have used so far the terms vaccination and inoculation as practically synonymous. I have done so because the substance used in this anti-typhoid inoculation, while it is not an injection of a serum, such as is used against diphtheria or tetanus, and while it is not a prepared lymph, such as is used in smallpox vaccination, it is the injection into the subcutaneous tissue of the dead bodies of the typhoid germ. It is, therefore, more akin to smallpox vaccination than it is to antitoxin injections. Since it is an active immunization by a sufficient mass of the causal agent of the disease, although this agent cannot increase indefinitely in the body. Besides, while it differs from the smallpox vaccination, being an immunization produced by a dead, and not living, causal agent, its results are not far different, and it seems as if we may soon realize that the present method of inoculation

*Russell, The Military Surgeon, 1909.

against typhoid gives very nearly the same immunity against typhoid as Jenner's vaccination gives against smallpox. Kitasato, in a recent article, gives the statistics of Japan in its struggle to keep a population vaccinated against smallpox, when all the nations around it were unvaccinated and rife with the disease. He shows very distinctly the protective power of vaccination against smallpox, both in its reduction of the incidence of the disease, and the reduction of the mortality. Discussing the mortality, in a recent epidemic of smallpox at Kobe, there were admitted to the Hegishiyama Hospital, 267 non-vaccinated persons, with a death rate of 50.2 per cent., and of the vaccinated there were 274 cases, with a death rate of 6.9 per cent. Of those who had been vaccinated within five years, there were 255 cases, with a death rate of 7.8 per cent. Kitasato further shows that the immunity acquired through vaccination against smallpox begins to disappear from the second year, and by the tenth year it disappears almost completely. The present vaccination against typhoid which we are considering, lasts, as far as we know, about three years, and it may last longer. Sufficient time has not elapsed to speak more extensively on this point, but it does seem to compare not unfavorably with our familiar smallpox vaccination.

I have said that this typhoid inoculation is obtained by means of subcutaneous injection of dead bacilli. The culture used is an old stock culture in the laboratory, showing the various peculiarities of the typhoid germs. It is a non-virulent culture, which seems to give a great abundance of antibodies after inoculation. The question has arisen whether a non-virulent is better than a virulent culture for this purpose. The virulent culture certainly produces more local and general reaction than the non-virulent, but it is a question if it generates more antibodies, and it is well to use a substance with a minimum of disturbance if we can obtain the same effect. For this reason the non-virulent culture has been used, and with excellent protective results. This culture is grown on agar jelly in large flasks, and, after 48 hours, is washed off with sterile salt solution, gathered in flasks, and the number of germs counted, so that when standardized, one billion germs shall be contained in fifteen drops, or a c. c. It is then heated for an hour at 60 degrees centigrade, precautions taken to insure its sterility, and that all germs are dead, and then put up in glass ampules and stored ready for use. The first dose contains five hundred million bacteria, the second and third doses are twice as large, and are given 10 and 20 days later. All these injections are made in the subcutaneous tissue of the arm, for if the local reaction is severe it is easier for a man to immobilize his arm than his leg. The immediate effect of the injection is a smarting pain, which is gone in a few minutes. If the vaccination be inadvertently injected into the skin or muscular tissue the pain may be considerable, and the local reaction more severe. According to Russell, nothing further is noted until four or five hours afterward, when the man may have a headache or feeling of malaise, and at the site of inoculation a red and tender area about the size of the palm of the hand. The headache and other symptoms are rarely sufficient to interfere with sleep, and by the next morning all symptoms have usually disappeared. In 95 per cent. of the cases the men are able to eat a good breakfast and carry through the day's work without inconvenience. The local reaction is a fairly constant phenomenon, and neither personal idosycrasy nor the size of the dose causes much variation. It begins to appear in from four to six hours, and reaches its full development in twelve, then gradually subsiding, and disappears in forty-eight to seventy-two hours. Occasionally, especially in children, or after the third dose, there is little or no reaction. On the other hand,

it may be unusually severe, with redness and swelling from the shoulder to the elbow, or even half way to the wrist. The axillary lymph nodes may be swollen and tender on pressure, but the swelling disappears in about twenty-four hours, and is followed neither by permanent enlargement or suppuration. These extensive local reactions are not particularly painful, and the men are able to use their arms for light work without discomfort. The severe general reactions which follow the vaccination may come on in anywhere from half an hour to three or four hours. There may be chills and diarrhœa, sometimes followed by herpes with malaise, with headache and nausea and vomiting, and a man be confined to his room for two or three days with some loss of weight. No cases of albuminuria have been reported. These severe reactions are more apt to follow in those who have had typhoid fever. Intense reaction to the first dose may be followed by no reaction whatever to the succeeding doses. It seems not improbable that patients showing an intense reaction are those who would show a lack of resistance to the disease if it were acquired, and they are the individuals who have a hyper-sensibility to the infection, for some people, even if vaccinated, may only have acquired sufficient resistance to typhoid fever to have a mild attach of the disease, if exposed to infection, but without the vaccination these same people might have had an intensly severe attack and succumb to it.

From the facts borne in upon us by our knowledge of the chronic typhoid bacilli carriers, we realize that, even with the best sanitation, there is a constant factor often of an unknown frequency, which may cause an epidemic of typhoid fever at any time, but with the vaccination here described we also realize that we have a means by which we should be able to stop the spread of an epidemic in a given locality, and to protect large numbers of people who would otherwise succumb to the disease. The immunity conferred by this vaccination last certainly long enough for anyone to go through an epidemic protected against the infection, and in military hygiene it offers a means that would seem to justify the hope of eliminating typhoid fever from among the scourges of war.

Herniotomy in Youth and Old Age.

Dr. A. C. Baker, 126 Rutledge Avenue, Charleston, S. C.*

The technique of herniotomy, or any major operation, in childhood and old age in reference to preserving and favoring all of nature's vital forces, is essential in obtaining good results and lessening the per cent. of death rate. At this time of life, nature's recuperating powers are weak and will not respond readily, if at all, to therapeutic measures.

The technique, which is necessary to be observed, viz., not to permit the patient to be unnecessarily starved or depleted by purgation before the operation, administer such treatment as will put the patient in their best physical condition. The anæsthetic to be used should carefully be considered. Ether is my preference for many reasons—but any are safe in the hands of an expert, and not one drop of the anæsthetic should be given more than that which is necessary to produce anæsthesia. When it is given after this method, the patient has to rally only from the effects of the operation, and not the additional burden of an over dope. The patient should be on a dry and warm operating table—nothing wet to depress and lower the heat centers. The field of

*Read before the meeting of the South Carolina Medical Association in Charleston, S. C., April 19, 1911.

operation should be prepared before the patient is carried into the operating room. The time consumed in performing the operation should be as short as possible. These are some of the requisites which determine the results in operations performed in youth and old age.

In reporting three cases of inguinal herniotomies in childhood—two five years of age, and one less than two years of age. The latter had double inguinal hernia—both operated on.

The writer wishes to call your attention to the dressing applied to wound and after-care of patient. Each wound was sealed with collodian, and no plaster of Paris applied to their tender little bodies to put them in a fixed and immovable position—a straight jacket, which is cruel, to say the least. An adult, after a herniotomy, is permitted to turn and twist in the bed. Why not give the child the same privilege? The thorough method of performing the herinotomy—that of suturing separate, each layer of tissue together—dispells all fear of damage to the parts, allowing free mobility to the extent that pain will permit.

Sutures used in these cases were No. 3 iodine catgut.

Each recovered from the operation without any shock. About eight hours after operation these children were permitted to be taken home by their mothers, whom I deemed more competent to care for their wants and to meet every indication as regards their physical needs. Then, again, a mother can do more with her child than any one in an institution can. She knows its diet, she knows how to amuse it, and in many little ways can she make it more comfortable than strangers. When the services of a trained nurse is needed, it is advised and secured—she is only to assist the mother in executing the doctor's orders.

These children remained in bed at their homes for eight days, and were given the liberty of the room. Dressings were removed on the 12th day—light adhesive dressings were applied—union by first intention, without any infection or damage resulting from liberty given.

In regard to hernia in old age: We know that after one reaches sixty, inguinal hernia in most cases is not kept up by a truss, because the muscles have been thinned out by the long pressure of the truss, and atropied by age.

The Bassini operation is faulty for the cure of hernia in old age. The technic is to suture the internal oblique muscle and conjoin tendon to Poupart's ligament to obliterate the inguinal canal.

The upper portion of this canal, its weakest point, is the internal abdominal ring, and it is closed off by suturing the lower portion of the internal oblique muscle, through which this ring is formed, to Poupart's ligament. Here we have muscle to ligament, which gives a faulty union—like tissue to tissue gives union that will hold. The conjoin tendon which is formed by the union of the internal oblique and transversalis muscles is not a part of the closure of internal abdominal ring. It serves only to close the lower two-thirds of the inguinal canal. The modified Bassini, to overcome this defect, is to suture the aponeurosis of external oblique with the internal oblique muscle to Poupart's ligament—aponeurosis to Poupart's ligament is like tissue to tissue. The cord is transplanted, resting on top of the aponeurosis of external oblique muscle, which has been sutured with its under muscles to the shelving edge of Poupart's ligament. The external flap of the aponeurosis of the external oblique muscle (which is a continuation of Poupart's ligament) is folded over the cord of its edge sutured down, making a new canal for the cord.

Four cases were operated on who were upwards of seventy years of age. Three of them were suffering from interstitial Brights—atheromatous arteries. The other one was very plethoric and used alcohol to the extreme limit. This rendered general anæsthesia unsafe. These

four cases were operated upon by the method just described, under a local anæsthetic (cocaine) and made uneventful recoveries; absolutely no shock following operation, and convalescence was very rapid.

Linen sutures were used to suture the external aponeurosis and internal oblique muscle to the shelving edge of Poupart's ligament—both of these layers of tissues were included in this one row of sutures, as above stated. Linen or silk is preferable in this class of surgery at this time of life. There is no danger of the union of tissues giving away in after months. The linen or silk, not being absorbed, holds for all time. Catgut is my choice of sutures under other conditions.

DISCUSSION.

Dr. C. B. Earle, Greenville:

Mr. President, I think we have all enjoyed this paper of Dr. Baker's, and realize the importance of the herniotomy, not only in early life, but in the extreme old age, and probably all of us will agree with most of the statements of Dr. Baker.

I would take exceptions with Dr. Baker as to a mother being the best nurse for the young child. It has been my pleasure to operate upon a number of young children, and I think that the younger the child the more easily that child is controlled by the nurse, and the same reasons would be used to put any patient in the hands of a trained nurse, would apply with equal force when operating in early childhood.

I agree with the doctor as to the ages at which operation should be done. I do not think herniotomy should be done before two and one-half years, because we can easily get a cure by pressure.

I would also take issue with Dr. Baker about the suture. The reason Dr. Baker advocates the use of linen or silk, is because the circulation is bad in old patients. The very reason which renders an unabsorbable suture more apt to become an irritating body and be thrown off; and irritation of the suture is probably the greatest cause of relapses after herniotomy.

Dr. LeGrand Guerry, Columbia:

I wish to mention two points in regard to the paper.

First, particularly in regard to old people. With children it does not make much difference what you do with the inguinal canal. With a child it will always close up, but in old people the way to insure against the recurrence of the hernia is the closure of the external ring.

From the muscles we get the motor part of the body. The external oblique is the anterior abdominal support, and, especially in old people, our success or failure will depend largely upon the promptness with which we close the pressure of the external oblique.

Secondly, the doing of these operations under cocaine solution. You can do almost anything with cocaine in old people, and any tissue that you can odematise you can anæsthetize. You can do hernia in an old man, under cocaine, a little better than under general anæsthesia, and I think one ought to do it.

Dr. J. Shelton Horsley, Richmond, Va.:

Mr. President, I wish to add my experience to that of Dr. Baker in regard to the post-operative treatment of children at their homes. I believe all children (private patients) under five years of age do better if they are taken home from the hospital as soon as possible after the operation has been performed. They are accustomed to be carried about by their parents, to have their nourishment prepared in a certain way, and to environments which are distinctly different from those of the hospital. This abrupt change often interferes with the child's nutrition, and in this way prevents healing of the wound. I believe also that all cases of hernia over fifty years of age ought to be operated upon under cocaine, unless they are excessively nervous. I have recently operated upon an old

gentleman eighty-one years of age, under cocaine, and he made an entirely smooth convalescence. The mere giving of a general anæsthetic to a patient of this age is much more dangerous than the operation for hernia.

Raynaud's Disease.

T. E. WANNAMAKER, JR., M. D., Cheraw, S. C.*

Mr. President and Gentlemen of the South Carolina Medical Association:

It is my pleasure to bring before you today a very unfortunate man, the tip ends of whose fingers and toes have rotted and fallen away, and not only this, but he has also lost one leg, which had to be amputated just above the knee.

In 1862 Maurice Raynaud published his thesis on a condition trophic in nature, in which the extremities, especially the fingers and toes, were the seat of recurring pallor, congestion and even gangrene.

The evolution of the disease may be divided into three periods (Raynaud):

The first period, which is generally insidious, lasts from a few days to a month. It is characterized by local asphyxia. The ends of the fingers become pale, bloodless, and insensitive, the patient has formication and the fingers feel dead. At other times the ends of the fingers, instead of being bloodless, become livid, there is a venous stasis, or local asphyxia. The invaded parts are symmetrical. These troubles are at first intermittent; later they become continuous.

In the second period, or stationary stage, the formication gives place to sharp pain. The diseased parts assume a livid tint, and sloughing is imminent. The gangrene is sometime preceded by the formation of pustules, which break and leave the derma exposed. As a rule the gangrene is superficial and limited. It does not extend below the superficial layer of the derma, and the nails are not always shed. In other cases the entire phalanx is invaded, and the dead parts become as black as coal. The second period lasts about ten days.

In the third period we find elimination of the eschars and cicartrization this process lasts for several months. When the gangrene has been very superficial, the pulp of the fingers shows whitish parchment, like cicatrices.

The end of the finger has a tapering shape. In more severe cases a line of demarcation appears at the base of the gangrenous parts. The suppuration at this line favors the throwing off of the slough.

In some exceptional cases the gangrene is not confined to the extremities of the fingers and of the toes. It also invades the ears and the tip of the nose, and it may indeed be limited to these parts, whilst sparing the fingers.

This description of the disease I quote from Dieulafoy:

The cause of the disease is unknown, be it a disease or a mere syndrome. It is most common between the ages of eighteen and thirty years, though exceptions have been noted. It is said to be more frequent in women that in men. It has often been apparently associated with malaria, schleroderma, leprosy, pericarditis, diabetis, with ergotism and with tuberculosis. In persons who have suffered from the disease emotional disturbances, as fright, is said to induce a recurrence in some. The affection is regarded by the patient as a habit of his circulation, which he accepts or ignores.

The disease seems to be of vaso-motor origin, and is best explained by Raynaud himself, in that the vaso-motor centre or centres are unduly irritable, that the com-

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monest irritant is from the periphery, for example, cold, and the efferent impulses from the centre lead to the paroxysmal contraction of the arterioles.

Lastly, I would call notice to the possibility of heredity as an etiological factor, for it has been told me by an old *antebellum* slave that this boy before you today is blood related to four children born of the same healthy parents before the Civil War. These children were apparently well until in later childhood they each became affected in manner similar to this case, having painful extremities ending in gangrene—of these, two were twins—there being two boys and two girls. Two apparently died of the disease while the other two were carried to Wilmington, N. C., by Yankees after the war, one of whom married and gave birth to a healthy child, and all were living and apparently recovered from the disease several years later. This fact, though not reliable, is extremely interesting in that it shows the possibility of the existence of the disease in South Carolina at the same time that it was described by Raynaud.

Diagnosis: There are several forms of gangrene which must not be mistaken for Raynaud's disease. The disorder closely resembles chilblain or frost bite, but the history is sufficient to prevent error. Raynaud's disease is a recurring affection, whereas frost bite is a simple and solitary accident, and by no means always symmetrical. It also resembles ergotism, but the history alone should distinguish the two. So also of the gangrene of diabetes, in which the glycosurial and the asymmetrical character of the gangrene are significent. Erythromelagia resembles the asphyxial stage of Raynaud's disease, but in the former and affected limb is hot, pulsating and more uniformly painful than the latter; moreover it does not present sensory changes, and gangrene does not result. Injury to a nerve, especially the median nerve, may cause gangrene of the finger tips, but the history usually is clear, the affection unilateral and the paralysis and anæsthesia are characteristic. Local gangrene may result from the obstruction of an artery, as in the condition called endarteritis obliterans, the pathology of which is obscure. There should be no danger of confusing with the various trophic lesions of tabes, syringomyelia, or even hysteria, for the associated symptoms of these are sufficient to distinguish them.

Treatment: Since we accept that the most probable cause is due to a disturbance of a hypersensitive vaso-motor mechanism, and that the attacks may be induced by exposure to cold or by fright, I would suggest that the patient be placed in the best hygienic surroundings in a warm and equable climate, investigations made as to diet, in order that we do not store up toxins in a body which might disturb the function of arteries, since we know these to cause change in the walls of the blood vessels, and why not alter their function? For those in whom cold induces a recurrence I would suggest the use of gloves in cold weather, and the feet to be kept warm, the same as to the whole body. Fresh air is to be desired, massage or rubbing the hands is a simple device to tone up the circulation of these parts. The most lauded means is by electricity, having the patient sit with his foot or his hand in a tub of warm water and apply one pole to the knee and the other gently over the foot and toes; in similar manner the hands can be treated.

Drugs are of little value, arsenic, strychnine, etc., may be used, and opium for relief of pain is indicated, though we have the danger of the habit. Alcohol or whiskey seems of value, but in it also there is danger of the habit; the use of a tourniquet has been recommended by some.

In closing, I invite your close inspection and discussion of the case, no further description being necessary, save to state

the facts that the parts affected have been symmetrical, the attacks similar to the above description, though of the severe type, and the strong tendency to paroxysmal recurrence after periods of apparent cure.

Treatment of Typhoid Fever.

JOHN FORREST, M. D., 10 King Street, Charleston, S. C.*

It was long before there was any approach to unanimity of opinion in the profession regarding the treatment of typhoid fever, not, indeed, until after hydrotherapy had slowly won its way to the front, through the writings of Brand and others in the middle of the last century, when it became in many quarters the recognized treatment of the disease, especially in Germany. And very soon, due to the advocacy of Dr. Simon Baruch, who always knows a good thing when he sees it, it also took first place in treatment in this country, a position which it continues to hold, with more or less variety of detail, and more or less correctness of technique, until this day. But with the progress of hydrotherapy and the eminently satisfactory results obtained from the use of cold water, there developed also a strenuous opposition to the use of all internal medication, the doctor having come to the conclusion that this at least was not a disease to be treated by medicines (see Dr. Osler). Thus the care of the intestinal canal, the seat of the manifestations of the disease, was left to nature, a far too serious task for nature to perform. Hence, in the cases seen today, we still encounter foul smelling, filthy looking stools, with the presence of meteorism, and protracted high temperature, and this, in spite of all the happy effects resulting from the use of cold water on the nervous system. But now we are learning that far better than any amount of hydrotherapy is the practice to clean up the intestinal canal and keep it clean, and that the keynotes of treatment are not by any means a "do nothing" attitude, but, on the contrary, an active and effective ilimination and antisepsis.

Let us see now how this is to be accomplished. The procedure that has been accepted in the light of experience and adopted, always with success, by those who have used it, is to begin the elimination with small doses of calomel and podophyllin, say, one-sixth of a grain each to be repeated every half hour until one grain each has been taken. This is to be followed by a saline laxative, which may be a teaspoonful of epsom salts dissolved in hot water, with the object of producing loose liquid stools. This to be repeated p. r. n. every fourty-eight hours. The antiseptic is then to be administered at once. The antiseptic is in the form of tablets of five grains each, and composed of the sulphocarbolates of zinc, sodium and calcium; zinc, half a grain; sodium, three and a half grains, and calcium, one grain. To these are added bismuth salicylate, one quarter of a grain, and menthol, one-fiftieth of a grain. The former is a test of the degree of antiseptic purity attained, the latter is merely for flavoring. One of these tablets dissolved in water and taken every two hours, is sufficient to establish and maintain a practically antiseptic condition of the intestinal canal. The result of this treatment is speedily seen in the beneficial changes wrought in the condition of the patient. As the purity of the intestinal canal increases, the bismuth contained in the tablets fails to react to its usual color test, the stools lose their offensive odor and become more nearly normal in color and consistency, meteorism is conspicuous by

*Read before the meeting of the South Carolina Medical Association, Charleston, S. C., April 19-20, 1911.

its absence, and the temperature falls. The fall of the temperature is so marked and so rapid that no necessity any longer exists for the use of the cold bath, to the great joy of the patient and his friends.

In short, the proofs of the advantages and success of this treatment are so positive and undeniable that it is difficult to understand how they can be neglected.

A word more and I am done. It often occurs as a result of this treatment, that the fever, instead of disappearing, all at once, assumes an intermittent type, and the temperature will be normal in the morning, while in the afternoon it will go up to 99½, and this may continue for some days, to the great disappointment of physician and patient. This calls for treatment with quinine in small doses, and quinine arsenate in one-sixth grain doses every three hours is often used to advantage in such cases.

Report Scientific Session South Carolina Medical Association, April 19-20, 1911.

WEDNESDAY MORNING, APRIL 19TH.

Association called to order by the President.

Prayer by Rev. William Way: Direct us, oh Lord, in all our doings, and especially in the concerns of this meeting, with Thy most gracious favor, and further us with Thy continual help, that in all our works begun, continued and ended in Thee, we may glorify Thy Holy Name, and finally, by Thy mercy, obtain everlasting life, through Jesus Christ, our Lord. Amen.

ADDRESS OF WELCOME—HON. R. G. RHETT, Mayor of Charleston.

Mr. President, Ladies and Gentlemen: I presume that the large majority of those whom I see before me this morning have been in Charleston at some time in years gone by; some of you, perhaps, recently; others at a more distant period. Well, even for those who have been here within the last year or two, there are still many interesting and inspiring sights in store.

Some six or eight years ago I would have hesitated to say anything about the historic charm of our city, because we had acquired a reputation for living too much in the past. There was so much in Charleston connected with history and romance of absorbing interest and so little of present activity that the world had grown to look upon us as dreamers who cared only for the deeds of our ancestors; but I think that the achievements of the past three or four years have made us less sensitive to such criticism. We no longer now hesitate to point with pride to the splendid monuments of past greatness and the peculiar charm of historic association, which makes the city so interesting to the visitor. To those of you who have not been here before, I extend a hearty invitation to St. Michael's church, to St. Michael's graveyard and tombstones, to the old powder magazine, to those exquisite specimens of classic and Georgian architecture which have made us famous, and at the same time, you can see in the midst of it all the result of that inspiration which it has brought to the people of our day. We have been putting our house in order here in Charleston during the past decade, and I want you to note how we have done it.

It is not so many years ago that the Clyde Line boats drawing fourteen feet had to wait on high water to enter the harbor. Last year the navy department published us as the fourth deepest port on the Atlantic and Gulf coasts, with thirty-two feet at high tide. Think of the transformation. (Applause.)

Now, gentlemen, this was done principally by a Republican administration, and if it was not for the enterprise and perseverance of the people of Charleston who

brought and held the attention of the government to that project, we would now have only eighteen feet of water instead of thirty-four feet.

It used to be a difficult thing to get our people together on any enterprise of a public or semi-public nature, and it was heresy to suggest any serious innovation. To illustrate, when we first talked of erecting a modern eight-story office building, there were many who were very hostile to what they termed the destruction of our beautiful sky line. But the change in public spirit cannot be better shown than in the way in which the funds for its erection were raised. Out of fifty who were approached to subscribe, there were but four refusals. Since its completion there are few left who would like to see it removed. The view from its roof has awakened more people in and out of Charleston to a realization of the wonderful harbor we have, and the beautiful city we are, than any other one thing. I cordially invite you to a view from its roof.

We used to have the antagonism of the railroads, who thought their interests lay in transportation up and down the coast, which made the development of any great port on the South Atlantic impossible. After a long and arduous struggle, we have at last induced them to see that their best interests lie in the development of this as the best gateway between the West and South America. The representatives of one system after another have come here to me and gone over the ground, and they all realize the city's advantages and their opportunities. There is no longer any doubt that it is to be the great ocean gateway of the South Atlantic coast. If you draw a line from St. Louis, from Kansas City, from Chicago to the northeast corner of South America, it does not pass through the Gulf, but through the South Atlantic coast near the city of Charleston. If you drop a line south from Charleston, it goes through the middle of Cuba, and then through the Panama Canal. The same line going northward passes through Roanoke, Va., Pittsburg, Pa., and Buffalo, N. Y. The coming ocean gateway of this coast, my friends, is beyond question the port of Charleston. (Applause.)

If any of you have not seen the navy yard, do not miss it. It is the finest yard the government owns. Some of the Northern politicians are trying to persuade the government to shut it up. The Northern yards have been monopolizing the work, and the communities surrounding them have been profiting therefrom for so long a time they are naturally fighting any diversion of this work, or any portion of it. But, my friends, if war come to us, from whence is it coming? Where on the Atlantic can an enemy secure a base for coal? Only in the West Indies. And yet, there are five yards north of Hatteras. They closed all the Southern yards save this at Charleston. But the navy and the government are gradually awakening to the paramount importance strategically of this yard, and the necessity of its further development. It has been a hard struggle to bring them to this realization, but it has been effectively done, I believe. You must not fail to see this yard. It is not only magnificently equipped, but it is one of the most beautiful spots to be found anywhere in the world.

I am not going to continue this advertisement of Charleston any longer. If the doctors cannot give you a suitable line of talk on that subject, and show you the city to advantage, we shall have to turn them over to some other place, as we are not owning any citizenship which is not optimistic.

But, gentlemen of the medical profession, there are some points of interest to you here in the line of your own profession.

It is not so long ago since we were surrounded by a malarial district. We could not sleep at night beyond the limits of out city. Malaria surrounded and even

infested us. It undermined the constitution of our people, and added greatly to our mortality. We adopted the mosquito theory promptly, and became pioneers in drainage. The man who accomplished this great work, Col. James Cosgrove, has recently passed away. He went to the Legislature and fought until he got a compulsory drainage Act. He put it into effect himself, and malaria has disappeared. Swamps have been transformed into truck farms and factory sites, and now we have a great back country that is as healthy as it is on the battery.

We had a problem in our water supply. We haven't yet got a supply which is entirely satisfactory. It seems to act on pipes when very hot, but from a sanitary standpoint it is all that can be desired, and our mortality is the best evidence of it. We have put in a complete sewerage system in the last fifteen months; and step by step we are bringing our sanitary protection to the best standard in the country.

We undertook the regulation of our dairies and dairy supplies about two years ago. Then we undertook a thorough inspection of meats and foods. We want now an abattoir, which, I trust, will come this year. There are many things which we have recently done here in the line of your profession, which may be worthy of your attention.

There is a misapprehension over a large section of this country as to the health of the Southern States. I was shocked some time ago to see an article from the pen of Clarence Poe, of North Carolina, stating that the mortality in the South was enormously greater than in the North. We took the death rate of the few cities of the South which kept statistics as the rate of mortality in the States where these cities were situated. Now, every one knows that the rate of mortality in the rural districts is much less than in the cities. Then the death rate in the Southern cities in 1900 was abnormally high and incorrectly taken by the government. The census report of the year just subsequent to 1900 showed this. From the most reliable sources I could find, the rate for South Carolina, and, indeed, most of the Southern States, was less than one-half what he gave it. Now we have no registration area in South Carolina, except Charleston. This city has always kept such statistics and publishes them in its year books. Many States in the Union have all their territory included in these registration areas, and the statistics are, therefore, published in the United States Census Reports. I think it is due the people of the South that we should clear up this thing. There is no reason why the South should be more unhealthy than other parts of the country, and, in fact, it is now more healthy than most portions of the United States; now that we have eliminated malaria and yellow fever. Now, if you gentlemen would get together and see that registration areas are established in this State, so that the true mortality rate for South Carolina will be included in the Census Bureau's reports, it will be seen and understood everywhere that this State stands near the top of the list. I know you realize the importance of correcting this misapprehension in regard to the health of South Carolina, and I hope you will use your efforts to this end promptly and effectively.

And now, ladies and gentlemen, I apologize for taking so much of your time. I invite you first to the top of the skyscraper, where you can view the city to the best advantage, and then to the other places, which your guides have mapped out for you. To one and all I bid a hearty welcome to the old and the new. (Applause.)

ADDRESS OF WELCOME—DR. A. E. BAKER, Charleston.

Our mayor has extended to you a genuine and heartfelt welcome. He has mentioned to you many of the points of interest peculiar to this venerable city.

He has thrown wide open the gates. The city is yours.

On this occasion it is my pleasing duty to welcome you in behalf of the medical profession of this city, a profession which, I assure you, in scientific attainments and courteous dignity, is worthy of the traditions of former years.

The origin of our Charleston Medical Society dates back to 1789. Its halls contain the oldest and largest medical library of its kind in this country. Many of its volumes are written in Greek, stamped with every evidence of age. Some of these volumes were written in 1538—373 years ago. We extend to each of you a cordial invitation to inspect our rich possessions in ancient medical literature.

The South Carolina Medical Association, now in session, has brought forward men of distinguished ability who have made their influence felt in promoting scientific advancement and moulding professional opinion. South Carolina may justly feel a keen pride in the membership of this State Association.

We deem it an honor to have so many of our profession in this city, and it will be to us a genuine pleasure to entertain you and contribute in every possible way to your comfort and pleasure. (Applause.)

The President: Mr. Mayor and Dr. Baker, on behalf of myself and my fellow members of the Medical Society of South Carolina, I desire to thank you for the warmth and eloquence of your welcome. I assure you most heartily that we appreciate it.

We South Carolinians are always glad to come to Charleston. It is a part of our State that we all love. We have all participated, many times in the past, of Charleston's hospitality. It is the most beautiful thing that grows upon the American continent, and the later one stays up at night, the more beautiful it grows. (Applause.)

Now, Mr. Mayor, allow me once more to thank you, and we will declare this Association open for business. (Applause.)

Dr. Weston: Mr. President, it has just come to our attention concerning the great affliction that has befallen the State of South Carolina in the death of a prominent member of our society, Dr. Manning Simmons, of Charleston, and I suggest that we adjourn for five minutes, out of respect and reverence, and that you appoint a committee to draw up suitable resolutions. Motion carried.

Dr. Kollock: The following invitations have been issued to the members of the Association: The privileges of the Charleston, Country, Commercial and Elks Clubs.

At five o'clock this afternoon a tea will be given to the visiting ladies by the ladies of the Country Club, conveyances to leave the hotel at a quarter to five.

The smoker which was to have been given by the Medical College tonight has been given up, on account of the death of Dr. Simmons.

A reception will be given by Dr. A. E. Baker tonight, at his residence, from 7:00 until 9:00 o'clock.

Tomorrow afternoon, at 4:00 o'clock, the members of the Association, with the ladies, are invited for an excursion around the harbor.

Dr. McCormick, chairman of the Organization Committee of the American Medical Association, will deliver an address tomorrow evening at 8:00 o'clock, at Hibernian Hall.

The privileges of the floor extended to Dr. Alexander Craig, assistant secretary of the American Medical Association.

Dr. Craig: The mayor told us this morning about the skyscraper. I possibly may be pardoned for saying that I come to you as one interested in another skyscraper. In the position of the jani-

tor of that skyscraper, as it were. To understand, if you please, whether the fixtures are just what they should be, what they might be, and whether I can carry some idea to others of your sister societies.

President's address: Dr. J. H. McIntosh, Columbia.

EDITORIALS.

Typhoid Anti-Vaccination.

We are printing in this issue an article by Dr. Alexander Lambert on vaccination as a prophylactic against typhoid fever. In our last issue we spoke of the importance of this measure, and again we wish to call attention to the results obtained by this form of treatment.

In view of the wonderful success obtained by army experiments and by the British foreign missionaries in curtailing the ravages of this scourge, it would be absurd for us to continue doubting its efficacy. The time seems to be approaching when all who are exposed to the chance of contagion will be given preventive doses, and it is to be hoped that this time will be not long delayed. Of course, it is certain that we will meet with much opposition when we first agitate the matter of general vaccination, but we must expect this and be prepared to face a storm of displeasure. At present inoculation against typhoid is only practical on those who voluntarily submit, but ere long it is to be hoped that whenever an epidemic threatens, the central government will take hand and force all who are exposed to be protected. A measure which will reduce the incidence of the disease 80 per cent., and the total death rate 90 per cent., is certainly one worthy of practice.

The cry is certain to arise that we have no right to enforce such measures, that we, in vaccinating those who are unwilling, are committing an assault, that we are attacking the liberty of the people; but we must likewise consider that we have the privilege of self-defense, and that any case of an infectious disease is a menace to the community at large. A case of typhoid is a danger to your family as well as to the individual who has it, and we should be allowed to protect ourselves against such dangers—in addition, we are protecting the individual vaccinated, even against his will. The danger to the one vaccinated is small, the reaction slight, and the results excellent.

Government's Control of Sanitary Matters.

In order to enforce the proper measures for the protection of public health it is necessary that we have a central department in full control of all health matters, and with full power to act. This department should be free of political influence and should be composed of recognized experts in sanitary matters. Their word should be law and their term of office should not be in the hands of those with political axes to grind. To them should be referred all questions of quarantine, drainage, public health matters, epidemics, etc., and they should be paid salaries sufficient to attract the best men to this work. The future field of medicine is undoubtedly that of prevention, and the most important part of our governmental machinery should be the Department of Public Health.

Already the public are beginning to realize, though ever so dimly, the importance of this field of sanitary work, and the Owen bill for the establishment of a Department of Public Health aims to do

something in this line. But as yet the public at large are woefully ignorant of how necessary protection of ourselves is, and are viewing the struggle to get such a department with apathy. Naturally the vendors of patent medicines and their ilk are fighting this advance tooth and toe nail, for they live by the ills of mankind and aim to foster these ills. But, likewise, naturally should the public interest once be aroused to the absolute necessity for such legislation, it would soon follow that such a department would be established.

Possibly the editor is a dreamer—an idealist—but he looks forward to the day when infectious diseases shall be looked upon as a disgrace, and will be banished from civilized communities. When no more shall exist swamps and cess pools, when our rivers shall cease to be streams of sewerage, and when healthy men shall not fear to walk in contact with disease, through a sense of safety from proper protection; when the physician shall become the director of the lives of his patients, instead of the dispenser of drugs, and the comforter of the bereaved families. Utopian, you say—yes, but possible.

Summer Diarrhoea.

Take for instance, the question of summer diarrhœa. It has not yet been decided exactly what is responsible for the most of these cases of summer diarrhœa, whether it is the water, the food, the fly or what not. But we do know that all of these are to some extent incriminated, and we satisfy ourselves with the treatment of the condition as we meet it, but do not do the proper amount of preventive work. We could eliminate practically all cases of such intestinal disturbance by eliminating bad water and flies, and yet these cases are exceedingly numerous. Even where it is impractical to get a proper water supply, it is never impossible to get a sterilized water, for boiling is quite sufficient as a sterilizer of contaminated water. Likewise, the elimination of flies by proper disposal of refuse, and by screening, will eliminate most cases of food infection, and the result would be a benefit to the people at large.

All of these matters should be under the supervision of a proper department, but in the absence of such a department, it is incumbent upon us as physicians that we each arrogate to ourselves the duties of such offices and endeavor to enforce sanitary laws.

Personal.

Dr. L. G. Corbett, of Greenville, S. C., has returned from New York, where he has been engaged in postgraduate study along the lines of his specialties.

Society Reports.

Abbeville—No report, fourth month.
Anderson—No report, third month.
Aiken—No report, second month.
Bamberg—No report, fourth month.
Barnwell—No report, fourteenth month.
Beaufort—No report, eleventh month.
Charleston—
Cherokee—No report, seventh month.
Chester—No report, fourth month.
Clarendon—No report, fourth month.
Columbia—No report.
Colleton—No report, tenth month.
Darlington—No report, eleventh month.
Dorchester—No report, eleventh month.
Edgefield—No report, eleventh month.
Fairfield—No report, eleventh month.
Florence—No report, eleventh month.
Georgetown—No report, sixth month.
Greenville—No report, fourth month.
Greenwood—No report, third month.
Hampton—No report, eleventh month.
Horry—No report, eleventh month.

Kershaw—No report, eleventh month.
Laurens—No report, eleventh month.
Lee—No report, eleventh month.
Lexington—No report, seventh month.
Marion—No report, fourth month.
Newberry—No report, seventh month.
Oconee—No report, sixth month.
Orangeburg-Calhoun—No report.
Pickens—No report, tenth month.
Saluda—No report, third month.
Spartanburg—
Sumter—
Union—No report, fifth month.
Williamsburg—No report, fifth month.
York—No report, seventh month.

Charleston County.

The regular midmonthly meeting of the South Carolina Medical Society (Charleston county) was held at the hall of the Society, June 15, 1911. Owing to the absence of the president and vice president Dr. Charles W. Kollock presided.

The paper of the evening, entitled "The Borderland," was read by Dr. J. F. Townsend, who clearly showed that often the patient needs the combined attention of the general practitioner and the specialist. He cited numerous cases in support of this, among them being the frequent causation of gastritis and bronchitis by nasal troubles and neurasthenia by eye and ear defects. Tonsilitis is often but the initial lesion of syphilis, nephritis, rheumatism and endocarditis.

Retinal changes may be secondary to systemic diseases and diseases of nervous system, as nephritis, diabetes mellitus, tabes-dorsalis, meningitis and intracranial tumors.

The paper was generally and favorably discussed. Dr. J. C. Sosnowski emphasized the importance of referring undiagnosed cases to the specialist. Dr. Porcher discussed the relationship between the nose and the sexual organs. Frequently when the general practitioner does examine the eye, ear, nose or throat he overlooks pathologic changes, because of lack of familiarity with these conditions.

Dr. Kollock reported two cases bearing on the paper: (1) A male patient had constant headache and his mind seemed affected. Upon examination hypermetropia was found. This having been corrected, he was completely cured.

(2) A girl of thirteen years became blind, except to light. Upon examination, nothing was found. She had menstruated only once. She was treated for the amenorrhœa. Menstruation returned, and with it good vision. Dr. Kollock emphasized the importance of the opthalmoscope, and said that every physician should be able to use it, as no instrument is of more value.

Under medical news, Dr. Kollock reported an epidemic of tonsilitis in Charleston. His cases, as well as others, had suffered an unusual amount of pain and prostration. In some the tonsils were only red, in others a membrane was present, while a few had progressed to suffocation. Nearly all were characterized by marked enlargement of the cervical lymph nodes. Dr. Whaley reported several cases of tonsilitis. In most of his cases the pulse had been low, about 90, while the temperature registered 103 degrees. Dr. R. Wilson had been struck by the long duration of fever and prostration.

Dr. F. Johnson said that he had been informed that lately there had been over 800 cases of tonsilitis in Boston, and that a few had died. Dr. Sosnowski reported that most of his cases had shown more pharyngitis than tonsilitis. Dr. Porcher had seen some cases, but they quickly responded to treatment.

There being no further business the Society adjourned.

R. M. Pollitzer,
Corresponding Secretary.

Spartanburg County.

On May 26, 1911, the Spartanburg County Medical Society held its regular monthly meeting with the following members present: Drs. A. N. Allen, Black, Boyd, W. H. Chapman, Cudd, Gantt, S.

T. D. Lancaster, D. N. Smith, D. L. Smith, W. A. Smith, Sparkman and Williams. No papers were read at this meeting, but several interesting cases were reported. Dr. D. L. Smith presented a patient from whose face he had removed a nævus with carbon dioxide snow after treatment with the electric needle had been unsuccessful. He also presented a patient who had had a well developed case of pellagra, which had been diagnosed as such by experts, and to whom he had given one injection of salvarsan two months previously. Almost immediately after the injection the head symptoms disappeared, the patient was greatly relieved and the mouth and skin symptoms gradually disappeared. Until at the time of presentation the patient was apparently well. Dr. Black reported cases of pellagra, which he was treating with cacodylate of soda, and which showed marked improvement. The society will watch with interest the result of these various methods of treatment, also Dr. Cudd's method of treating pellagra by washing out the intestines with peroxide of hydrogen through an opening in the appendix. Dr. Black also reported a case of puerperal sepsis improving under treatment with streptococcic vaccine. The report of the delegate to the State Association was heard. All of the members who attended the meeting were delighted with the entertainment furnished them in Charleston.

L. Rosa H. Gantt,
Secretary.

Sumter County Medical Association.

The regular monthly meeting of the Sumter County Medical Association was held today in the office of Dr. E. R. Wilson. There was a good attendance of members. Dr. W. E. Mills presided.

Dr. Baker, in response to a question, reported the result of the decompression operation performed on a patient exhibited to the Association at its last regular meeting. A young man had been struck upon the side of the head over the motor area by the lever of a log wagon some ten months before, followed by loss of motion on the opposite side. The skull was somewhat depressed. A large bone flap was turned up and the underlying dura, somewhat adherent to the cerebral structures, was also freed. Result after five weeks was a slight gain in motion, more particularly in the fingers of the affected side.

Dr. Lemmon reported two cases of syphilis: 1. Once saw a negro woman suffering with some obstruction to inspiration. It was decided to do a tracheotomy. Chlorofom anæsthesia was begun, but after two or three whiffs patient died. Post-mortem examination showed at arytenoid cartileges two large ulcerating glands, so large as to almost entirely exclude the entrance to air. 2. Two or three weeks ago he saw a patient with a goitre and suffering with asthma. He prescribed for the asthma without benefit. Later it developed that the man had syphilis. There were no rales in the chest, but great difficulty at inspiration. Patient died from asphyxia. No post-mortem examination, but is satisfied death was due to some cause as first case mentioned. 3. Several weeks ago he saw a convict on county chain gang suffering from syphilis. Body covered with pustular syphilide, there was a horrible odor from his body, temperature 102 degrees, albumen in urine, heart irregular, bad cough. Put him on specific treatment, but no medicines by mouth could be retained on account of nausea. He tried an injection of salvarsan. In two weeks the patient was practically well. Temperature for first three days after injection went to 104 degrees, then gradually dropped. Has had fine results in nine cases treated by salvarsan. He uses the intramuscular method. Gave one intravenous to a man with chancre of lip. He is going to repeat the injection on most of his cases, but has not yet given a second dose to any.

Dr. Wilson exhibited a 606 syringe (Ehrlich's model.)

Dr. Stuckey read an interesting paper on tetany, which is here included.

The special subject set for discussion was Dysentery—leader, Dr. Lemmon. His paper here included. Discussion. Dr. Stuckey begins treatment with a dose of salts, and allows very little nourishment. He referred to a paper upon the so-called surgical treatment of dysentery, read some years ago before the State Association by the late Dr. E. L. Patterson, of Barnwell. He has never used this method, but believes in certain cases it will give good results. He had a case in a baby not long ago, and used a solution of quinine in aromatic sulphuric acid to flush the colon twice a day, allowing the solution to be retained. This treatment he followed by an iron mixture to combat the anæmia. In ordinary cases he gives only salts or oil and diets strictly. Some cases are relieved by opium and mercury.

Dr. China: Some cases of dysentery start with a child followed by fever. He bases his treatment upon blue mass, ipecac and opium till he sees the physiological effect, then follows with salts and laudanum combined with high hot salt enemas. Quinine benefits some cases, especially in malarial districts. In children he uses mercury and chalk or bismuth and lactopeptine supplemented by the salt enemas. A salol, bismuth and rhubarb mixture is good. In children he depends upon castor oil and bismuth.

Dr. Lemmon begins his treatment with calomel, because it is a mild antiseptic, and follows with oil, and later with bismuth 20 grains, chalk and rhubarb one drachm. There is one variety of the disease where there is a serous dirrhœa. He has recently seen two female patients suffering with it. He administered nux vomica and hydrochloric acid and cured his patients.

Dr. Stuckey has seen obstinate hiccoughs present in dysentery. It is a very serious symptom.

Dr. Baker stated that he wanted to get a class for postgraduate work started. Drs. Wilson, Lemmon and Mills agreed to join the class.

Subject chosen for discussion at the June meeting was *Fish Stew*. Place, Pocala Springs. Leader, Dr. E. R. Wilson.

The meeting then adjourned.

S. C. Baker, Reporter.

Sumter, S. C., May 11, 1911.

Mr. President and Gentlemen of the S. C. M. A.

Tetany: This is a condition characterized by tonic muscular spasm, which may be intermittent or continuous. Holt, in discussing this disease, and most of what I shall have to say will be taken from Holt in his book on diseases of infancy and childhood, except to report a case in reference to etiology he says: While it may occur at any age, it is most frequent in infancy. It rarely occurs as a primary disease, frequently associated with rickets, some times occurs in chronic diarrhœa and with marasmus. Of the exciting cause the most frequent seen is some irritation in the gastro-enteric tract.

Symptoms: The spasm may occur quite suddenly or may be preceded by various sensory disturbances, such as pain, numbness and tingling. The upper extremities are usually first affected, the spasm becoming more severe and finally involving the lower extremities, and then finally all the muscles of the body, and then general convulsions. This disease may be mistaken for tetanus.

Treatment: First remove the cause if possible—H. & L. bath—clear out intestinal tract—chloral, the bromides and also antipyrine is recommended. The history of the case I wish to report is as follows: March 27 was called at night to see a baby, colored female, age 13 months, said to be having convulsions. When I arrived the baby was quiet, hot bath had been given. Found baby with fever,

ordered oil, gave phenacetin pulv. for fever. Three days after this baby was brought to my office suffering with diarrhœa. The baby was small for age, and poorly nourished. For the next week or ten days the father of the baby called at office to report the condition of the baby, which was reported not doing well, growing worse. April 22 was called to see the baby, found her in most distressing condition — convulsions—the arms, legs, in fact, all muscles of the body hard and stiff. The convulsions seemed to pass off at times, but the muscles did not relax. The teeth closed tight and the baby presented to me a condition of tetanus, but as no wound nor any source of infection could I find, so I pronounced this a case of tetany. My treatment was for diarrhœa. First emptied the intestinal tract with oil, gave bismuth, calomel and lactopeptine. For the tetany condition administered chloroform and gave by rectum, for the teeth were closed tight and could not get mouth open —chloral hydt and pot. promide. To make the history of this case complete will say the baby died about ten hours after my last visit.

May 4, 1911. H. M. Stuckey.

Current Medical Literature.

The Result in Two Cases of Extraperitoneal Transplantation of Ureters into the Rectum for Extroversion of the Bladder Four and One-Half (4½) Years After Operation.

(J. V. Arumugum, M. B., American Journal of Surgery, May, 1911.)

On August 20, 1906, in the Victoria Hospital, at Bangalore, Mysore Province, Southern India, a boy, aged 18 years, was operated upon for extroversion of the bladder, and the ureters were transplanted into the rectum, according to the method advised by Mr. Peters, of Jaranto. The patient was discharged from the hospital fifty-eight days after the operation. At the time he left the hospital he was able to retain urine in his rectum for about four hours during the day and for nearly nine hours at night, i. e. (during sleeping hours, from 9 p. m. to 6 a. m.).

On April 15, 1907, a boy, aged 13 years, had his ureters transplanted into the rectum for extroversion of the bladder, and was discharged from the hospital three months after the operation. This patient was able to retain urine in the rectum for about four hours during the day and for nearly five hours at night at the time of his discharge from the hospital.

I have seen both these patients several times. The second case was seen by me on February 16, 1911, when I found that he was able to retain urine in his rectum for nearly six hours during the day, and was at times disturbed at night only once between 9 p. m. and 6 a. m.

The first case of extroversion of bladder was last seen by me about three months ago, when the patient was able to retain urine in his rectum from five to six hours during the day and for nearly eight hours at night.

A Criticism of the Technique of Ureteral Catheterization of Dr. Howard Kelly (Published in the American Journal of Surgery, January, 1911).

(Alex. H. O'Neal, A. D., A. M., M. D., American Journal of Surgery, May, 1911.)

The method of Dr. Kelly allows of inspection of the bladder by the Kelly cystoscope. If only one ureteral orifice is

found to be "puffy or edematous" or surrounded by an area of ulceration, the ureteral catheter is introduced only into this orifice, the urine then drawn by ordinary soft rubber catheter from the bladder itself, being said to come from the opposite kidney.

The objections to this method are as follows:

First. It is impossible to practice chromocystometeroscospy (a valuable method) by Kelly's technic and get the functional value of each kidney. I have recently seen in a case of my own, urine coming at the same time out of the ureteral catheter and of the orifice of the ureter. In this case the right kidney was functionally deficient, but not infected, while the left kidney was functionally perfect, but infected by the colon bacillus. Imagine yourself drawing any correct conclusions from the method advocated by Dr. Kelly. Both kidneys would be declared to be functionally perfect.

Second. A correct bacteriological examination could not be made, as we would get the infection from the bladder and both kidneys mixed. Therefore, how draw any correct conclusions? In the case mentioned above, both kidneys would be declared infected.

Third. If the bladder is infected, how say that the kidney is not infected?

This method, as applied to the case alluded to above, with one kidney functionally imperfect, the other kidney functionally perfect, but infected, would certainly lead to a wrong diagnosis.

The Bacteriological Diagnosis of Exudates, Etc.

(By Edward C. Rosenow, M. D., of Chicago, Interstate Medical Journal of Surgery, May, 1911.)

The inoculation or vaccine treatment of infections makes accurate bacteriological diagnosis imperative. The differentiation of streptococci and pneumococci, while quite accurately worked out in bacteriological laboratories, is still too often attempted by clinicians and in "clinical laboratories" on the older points of difference, viz.: Chain formation, morphology and growth on ordinary culture media. These are often wholly inaccurate and frequently lead to disastrous results. The many mistakes in the identification of the cause of infectious processes, which have come to my notice during the past eight years, prompt me to emphasize some simple, yet essential, points in technique in the bacteriological diagnosis of exudates, etc. Make at least a gram stain, counterstained with weak carbofuchsim of the material at hand. This serves as a guide to the kind of organisms present and their number. If diplococci resembling pneumococci are found a capsule stain may be made. Of the methods in vogue for staining capsules, the one reported by the writer in the *Journal of the American Medical Association,* February 11, 1911, has the widest range of usefulness. But even this method is not reliable enough in some instances to differentiate clearly between pneumococcus, streptococcus mucosus and streptococcus pyogenes.

If the pus or other material has been contaminated, as is always the case when the discharge has continued for some time, wash it in several changes of broth or distilled water, and plate out directly into blood agar plates. Blood agar is prepared by adding approximately 0.5 c. c. of sterile defibrinated blood (human or animal) to each tube of 5 c. c. of melted plain agar after it has cooled to 40 degrees C. The defibrinated blood for this purpose may be kept on ice for a month or longer, provided hemolysi has not taken place; samples differ in this respect. The value of blood agar plates and blood containing media is very great because they make a most favorable culture medium for highly parasitic organisms, such as bacillus influenzæ, pneumococci, meningococci and gonococci, and which nearly always fail to grow on the

ordinary culture media. Its value is far greater than serum agar, because the blood serves, among other things, to differentiate quite clearly between streptococcus pyogenes and pneumococci. The former produces a zone of hemolysis, manifested by a perfectly clear area which begins immediately around the colony, while the pneumococcus (and streptococcus viridans) produces a zone of green and very occasionally a narrow clear area of hemolysis peripheral to this. These points of difference have never failed in my hands. In the examination of hundreds of stains, I have never seen pneumococcus colonies produce hemolysis, which begins immediately around the colony, while pathogenic streptococcus pyogenes always produced more or less hemolysis, which begins immediately around the colony itself.

Differentiation of green-producing colonies of diplococci may be made by use of inulin. This is not often necessary, because streptococcus viridans produces lesions relatively rarely.

In this connection should be emphasized the great value in thorough centrifugation of fluids in which the bacteria may be relatively few, such as cerebrospinal fluid, pleural, or peritoneal. The smears and cultures should be made from the sediment, and as early as possible after they are withdrawn.

The Newer Heart Remedies.

(By William F. Boos, M. D., Ph. D., of Boston, and C. H. Lawrence, Jr., M. D., of Boston, Interstate Medical Journal, June, 1911.)

In a recent paper one of us reported on the clinical use of another new preparation of digitalis, namely, digipuratum. This preparation, which is a purified extract of digitalis, seems to approach more nearly to the ideal drug than any of its predecessors. Digipuratum is constant in action, it is permanent (a powder in our possession was found not to vary in strength from May, 1910, to May, 1911), it does not cause gastro-enteric disturbance (over 200 cases, Massachusetts General Hospital), it shows less tendency to produce cumulative intoxication than any of the other preparations of digitalis, and it is prompt and reliable in action. It has one great fault; it is very expensive compared to other preparations. There are times when a heart stimulant, to save life, must act within a few hours, and it is just such a stimulant that chemists and pharmacologists have been trying for years to obtain. The first of this group to be of practical value was strophanthin, the active principle of strophanthus hispidus. One of us introduced this drug into America four years ago, and it has since been used to a certain extent, especially in hospitals. Strophanthin must be given intravenously, since its hypodermic application causes most intense pain and considerable local disturbance. If it is given intravenously with proper technique it acts as a wonderful cardiac stimulant, and its use is absolutely free from untoward actions of any kind. It may be safely said that if strophanthin fails to produce the desired effect, the heart of the patient is beyond digitalis—like stimulation. Strophanthin is also indicated in conditions of hydremia when absorption from the gastro-intestinal tract is reduced to a minimum on account of the water-logged state of the system. In such cases large amounts of digitalis given by mouth have no effect, the greater part of the drug is excreted unabsorbed and accumulation of water in the system continues. Strophanthin given intravenously acts directly upon the heart, with the result that efficient diuresis occurs within twelve to twenty-four hours. The system which has been depleted of its excessive water content is then in a condition readily to absorb digitalis preparations given by mouth. There is a class of cases which responds better to strophanthin action than to that of digitalis. In these cases strophanthin may be given in-

travenously for a period of days or for a week, and the results obtained in this way are incomparably better than either from digitalis or strophanthus by mouth. It may be said in general that strophanthus therapy by mouth is unsatisfactory.

Hexamethylenamin: A Remedy for Common Colds.

(Austin Miller, M. D., Porterville, Cal., The Journal of the American Medical Association, June 10, 1911.)

The diversity of treatment of colds is common knowledge; doctor and layman alike prescribe hot drinks, foot baths, sweats, quinine, coal-tar antipyretics, Dover's powders, whiskey, and so on. And some as wisely prescribe time, since the disease is self-limited and a recovery is the rule after a period of greater or less discomfort.

In view of the reported excretion of hexamethylenamin in the saliva, and by the middle ear and bronchial mucous membrane, I have been for the past year prescribing it for common colds.

In most cases it acts promptly and efficiently. The irritating, watery secretion of coryza stops; the fever, aching and malaise of influenza cease; the threatening disease is averted.

Hexamethylenamin should be administered at the earliest possible moment; that is, when the nose begins to feel stuffy or the discomfort begins—"when the cold is being caught." Its use, after the infection has existed for several days, is less gratifying, possibly on account of the mixed infection at that time with pus organisms.

As to the dosage, it seems necessary that a larger amount must be given to obtain antiseptic results in the gall-bladder, subarachnoid space or on the nasal mucous membrane than is required as an antiseptic in the urinary tract. The findings of Crowe seemed to indicate that 75 grains a day must be given in order to obtain quickly the desired effect in the gall-bladder. At the onset of the cold the following prescription, which makes the dose 15 grains four times in twenty-four hours, is efficient:

℞

Hexamethylenamin ..... gm. 12| or 5iii
Div. in chart. cerat. No. xii.
Sig. One powder to be taken in a goblet of cold water four times daily.

Copious water drinking is encouraged, which lessons the possibility of bladder irritation. This latter is the only ill effect of the drug, but it occurs only occasionally and ceases at once when the medicine is discontinued. As a cure for colds it may be as great a boon as it has been proved to be as a urinary antiseptic.

Tonsilitis and Genito-Urinary Disorders.

(Merck's Archives.)

G. L. Hunter, of Baltimore, after referring to the recent enumeration of ailments ascribed in certain cases of tonsillar disease by Rosenheim (Bull. Johns Hopkins Hosp., Nov., 1908, XIX), says that those treating diseases of the urinary organs in women are familiar with the so-called rheumatic urethritis. There are many cases in which gonorrhea can be ruled out to a practical certainty, and some in which we are at a loss to ascribe the symptoms to anything but a rheumatic cause. His experience with these patients is that they respond more readily to local treatment that do those with chronic gonorrhea, and, as a rule, they relapse within a few years or months. His impression also is that in these cases we find the inflammation more frequently in the posterior third of the uretha, rather than in the anterior third, where it is more frequent in gonorrhea. Several illustrative cases are reported and discussed. He finds the evidence of their connection with tonsillar disorders sufficient to warrant a more careful study of chronic urethral cases, for, if we can relieve them by tonsillectomy, as he has done in several of

his reported cases, we will make an important advance in therapeutics. The possible connection between tonsillitis and ureteritis has been brought to his attention only recently, and he reports two cases of this type, in one of which the tonsils had been removed. A suggestive feature in one of these is that the patient had a sore throat and hoarseness following each attempt to catheterize the ureter. He believes that this new theory of tonsillar infection or toxins producing ureteral strictures may be found to explain some otherwise obscure cases. While not himself familiar with male genito-urinary work, he is informed that many cases of posterior urethral inflammation cannot be traced to gonorrheal infection. Geraghty, of Johns Hopkins Hospital, tells him that he has seen cases of accute prostatitis with abcess formation occur during or immediately after tonsillitis, and he thinks that it is not improbable that some cases of chronic urethritis may have a like origin. —Jour. A. M. A., April, 1911.

SUPRAPUBIC TRANSCYSTIC REMOVAL OF CALCULI IMPACTED IN THE PORTION OF THE URETER, WHICH IS SITUATED IN THE BLADDER WALL.

(By W. J. Mayo, M. D., Rochester, Minnesota, Surgery, Gynecology and Obstetrics, June, 1911.)

From June 1, 1899, to May 1, 1911, eighty-two stones were removed from the ureter by operation in St. Mary's Hospital. Of this number twenty-two were within one and one-half inches of the origin of the ureter in the pelvis of the kidney, forty-eight were in the terminal ureter, that is, within an inch and one-half of the bladder, eight were situated at various points along the course of the ureter, and four were not classified in the records as to their position. We have not found the so-called second point of narrowing of the ureter, which is supposed to be near where it crosses the iliac artery, to contain impacted stone more frequently than any other point along its middle course. Stones in that portion of the upper ureter, which lies above the iliac crest, we have generally removed through the posterior extraperitoneal lumbar incision.

Stones which are situated in the bladder segment of the ureter are the most difficult to remove, and the opening in the duct must be carefully sutured to prevent urinary leakage, as not infrequently the bladder wall is injured.

In sixteen instances Braasch has been able to remove stones impacted in the lower portion of the ureter through the operating cystoscope, or when the stone could not be removed in this manner, he had made an attempt to assist spontaneous evacuation by dilating the lower end of the ureter up to the point at which the stone is lodged, and injecting sterile oil above. In several of these cases the stone was passed spontaneously within forty-eight hours. In many cases the impaction was so great that none of these measures were effective, and we have removed the calculus through a low muscle-splitting extraperitoneal incision. This operation was often difficult, and in several cases the bladder was injured, requiring careful suture. In four cases at Braasch's suggestion, we have made a suprapubic incision, opened the bladder and with the finger in the bladder and the thumb in the cellular space outside the bladder wall against the lower end of the ureter, the stone has been readily forced into the bladder. Sometimes a pair of forceps has been used to dilate the ureteral orifice in front of the advancing stone. This method has been so simple, safe and satisfactory that we consider it superior to any we have heretofore practiced for the removal of impacted stone in the terminal ureter.

After removing the stone or stones, the suprapubic opening in the bladder is sutured in layers with fine catgut. In closing the abdominal incision we have usually made provision for drainage of

the space of Retzius by carrying a folded strip of rubber tissue down to the suture line in the bladder wall, but in none of the cases was there leakage of urine.

A combination of cystoscopic and ureteral examination with skiagraphs furnished the necessary diagnostic data. The one method supplements the other, sometimes the X-ray will show stones which cannot be found by ureteral examination, and again, stones will be discovered with the aid of the ureteral catheter, which are not shown in the X-ray.

We are indebted to W. F. Braasch, and J. H. Selby, respectively, for their cystoscopic and radiographic data, which enabled us to make the diagnosis in these cases.

A Case of Omental Myxosarcoma.

(By Angus McLean, M. D., Detroit, Michigan, Surgery, Gynecology and Obstetrics, June, 1911.)

The following case is reported on account of its rarity and extreme interest. At the time of operation, and after the pathological diagnosis of myxosarcoma had been made a very guarded prognosis was given. Contrary to expectations, the patient has for three years enjoyed a fair degree of health and comfort. At present there are no signs of recurrence.

The patient first came under my observation in February, 1908. Examination. Abdomen markedly distended. When lying on his back, as best he could, there was dullness extending to the flanks on either side. On turning on his side the dullness in the flank opposite to the one on which he was lying disappeared, showing the presence of free fluid in the abdominal cavity. The dullness in the umbilical region, however, persisted, no matter what position he would assume.

On palpation a firm body could be outlined filling the whole umbilical region.

His urine was normal. His blood showed the percentage of hemoglobin diminished to 80. There was a relative polymorphinuclear leucocytosis. (Polymorphinuclear 82.7 per cent., large lymphocytes 8 per cent., small lymphocytes 9.3 per cent.)

Diagnosis. This was rather obscure, but we felt that we were dealing with a slowly growing, large, movable tumor, ascites.

Operation. Upon opening the abdomen about three quarts of ascitic fluid escaped. In this fluid there were hundreds of mucin globules about the size of peas. The tumor presented in the incision and could plainly be outlined with the finger in the abdomen. The incision was enlarged and the tumor drawn through it. There were a few adhesions to the small intestine which were easily freed. The tumor occupied all the great omentum extending downwards from the transverse colon. It was carefully dissected from its colonic attachment and ligated piecemeal. The blood supply was rather meager and bleeding in the course of dissection was easily controlled.

The tumor weighed ten pounds. The shape was peculiarly pointed at the lower end as seen in the accompanying drawing. Transversely it measured ten inches, perpendicularly eight inches, while its thickness was about two inches.

Pathologically the tissue was a myxosarcoma, the sarcomatous cells being of the small round cell variety.

Bufagin.

(New York Medical Journal, June 3, 1911.)

Abel and Macht have made experiments with the milky secretion of the "parotid" glands of *Bufo Agua,* a tropical toad, when the animal is greatly excited. This secretion contains a venom which owes its efficiency as a poison in a large degree to the presence of a digitalis-like substance, although the large amount of epinephrin present is an important auxiliary in this action. And it is to the former constituent or to sub-

stances closely allied to it, such as have been described by Faust, that toadskins owe their efficacy as a cure for dropsy, a method of treatment which would perhaps still be in vogue had not William Withering, in 1775, introduced for this very purpose the foxglove, the active constituent of an old wive's remedy. Now that science has begun to study the ancient remedy, toadskin, we may confidently expect further discoveries in this field, possibly with results of value for practical medicine. They have named the digitalis-like substance "bufagin," in order to have a short term sufficiently indicative of its origin.

Syphilis—Sodium Cacodylate In.

(The Journal of the Medical Society of New Jersey, June, 1911.)

Dr. John B. Murphy, of Chicago, published an article in the Journal of the American Medical Association of September 24, 1910, in which he detailed the striking results obtained by him through the hypodermic administration of sodium cacodylate in the treatment of syphilis. Physicians who have not seen the article in question will be interested in the following abstract, as published in Therapeutic Notes:

"Administered in doses of ½ to 2 grains hypodermically, its action was prompt and efficacious. Chancres became clean ulcers without induration in forty-eight hours; mucous patches cleared up in twenty-four to forty-eight hours; ulcers of the palate and pharynx healed in three to six days. In a child nine months old ¼ grain injected into the pectoral muscle caused a papillary syphilide to disappear in forty-eight hours. Two 2-grain doses, twenty-four hours apart, completely relieved the pain of the patient, who suffered from active gastric crises (luetic), which usually lasted three weeks. An advancing perforating ulcer of the palate, which had resisted injections of ¼ grain of mercuric bichloride daily promptly yielded to sodium cacodylate, two injections of ¾ grain each. The ulcer was healed in six days.

Dr. Murphy suggests that sodium cacodylate be employed in primary doses of 2 to 4 grains, depending on the size and strength of the patient, and not repeated within three or four days, unless there are special indications for it. Sodium cacodylate, in sterile solution, is marketed by Parke, Davis & Co., in sealed glass ampoules containing ¾ grain and 3 grains, respectively, of the arsenic salt.

Potassium Permanganate as a Hemostatic.

(New York Medical Journal, May 27, 1911.)

L. Buckle, New York (Journal A. M. A., April 29), reports a case of excessive hemorrhage in a Jewish child after the rite of circumcision had been performed on the eighth day after birth, in which the ordinary treatment with styptics failed to control the bleeding. The child became so pale and weak from the loss of blood that its parents took it from the hospital to die at home. Having in a former experience observed the good effects of potassium permanganate in powder when applied to persistent capillary oozing from small cuts, Buckle ventured to use it in this case with the result of immediate checking of the bleeding and no recurrence. The action so promptly of the potassium permanganate was a surprise to him, and, while not enthusiastically recommending it for such cases, thinks the success in this case merits its publication. The child was not a hemophiliac, for a deep cut in the forehead, caused by a fall three months later, gave no trouble at all and healed well.

Summer Cases.

Conditions peculiar to the season now with us will present themselves for your consideration and a reference to the fact

that Antiphlogistine has proven of particular service in Sunburn, Bee Stings, Insect Bites, Sprains, Bruises, etc., will offer you a ready and satisfactory dressing, and is procurable in all drug stores.

In those severe cases of Dermatitis following undue exposure to the sun's ray, Antiphlogistine will quickly reduce the inflammation and accompanying swelling and pain.

In all cases it should be applied thick and hot and well protected by ample covering.

IF THE STOMACH WERE A SACK.

If the stomach were a sack into which uncooked food and nauseous drugs might be thrown, and be digested and absorbed into the system—then there could be no objection to plain crude cod liver oil. The stomach would use it just as it would the uncooked food. But since the stomach is not a sack, but happens to be a delicate organ which will resent harsh treatment, uncooked food, nauseous drugs and plain crude cod liver oil are not good for it, and against them it rebels. Our common sense warns against uncooked food; deference to the patient's taste guards against the administration of disagreeable drugs, and the manufacturing chemist has made it possible to give cod liver oil in palatable form. Hagee's Cordial of the Extract of Cod Liver Oil Compound is the most efficient and palatable of the cod liver oil preparations, and its great value as a tissue food has won for it wide use at the hands of physicians.

From the Lay Press.

DR. S. H. GRIFFITH DIES SUDDENLY.

(The News and Courier, May 15, 1911.)

Gaffney, May 14.—Special: All Gaffney was inexpressably shocked and saddened this morning to learn that Dr. Stephen Harrison Griffith, one of the best known and most prominent and influential citizens of this city was dead.

Dr. Griffith a short while ago made arrangements to move to Greenwood, and had, in fact, already gone to that city. His family, however, remained in this city, and it was his custom to spend the week-end here with them. Last night he arrived on a night train and walked to his home, on Jeffries street. He complained of being ill, but nothing serious was anticipated, and when he retired no serious symptoms were in evidence. In a few minutes, quite near 12 o'clock, he breathed his last. Heart failure is ascribed as the cause of his death.

Dr. Griffith was the son of Capt. H. P. Griffith, senior instructor at Limestone College. He was 44 years of age. The deceased had been engaged in the practice of medicine, and was also an oculist and optician in the city for twenty years. He is survived by his wife, who was Miss Lula Twitty, of Heath Springs, and two children, H. P. and Tom; one brother, one sister, Mrs. Manley Stalworth, of Gainesville, Ga.

He was a consecrated Christian man, being a member of the First Baptist church of this city. The interment will take place at Oakland cemetery tomorrow morning at 11 o'clock, and will be conducted by Dr. J. S. Dill. There will be no church service.

TWO-COUNTY DOCTORS MEET.

Orangeburg, May 16.—Special: The Orangeburg-Calhoun Medical Association

held a meeting in this city this morning at the City Hall. The meeting was well attended, and was presided over by Dr. W. L. Pou, of St. Matthews, the esteemed president of the Association. Various subjects were discussed in such a way as to make the meeting very advantageous to all present.

After adjournment the local physicians invited the guests to the St. Joseph Hotel, where a sumptuous dinner was served.

Endangers Own Life to Save Little Ones.

(The State, Columbia, S. C., May 25, 1911.)

Leesville, May 24.—Yesterday afternoon, about 6 o'clock, a horse belonging to two fruit tree agents from Tennessee ran away here. The horse started running on the eastern edge of town, and came through Main street, hitched to a buggy. At H. F. Hendrix's store the horse turned west, and made directly for a crowd of children, who were playing in the street, all unconscious of their danger. Dr. L. A. Riser was sitting in his buggy in front of the Hendrix Hotel, out of danger, but seeing the danger of the children, he jumped in front of the mad animal in an attempt to turn it out of its course. He did this, but as the animal turned the buggy went over and knocked the young man down. He caught under the buggy and was dragged several yards. Finally the horse broke loose from the buggy and Dr. Riser was able to get out, with one knee skinned, his head bruised, and his left arm broken just above the wrist. There was not another doctor in town at the time, but Drs. Gibson and Timmerman came from Batesburg and set the fracture. The patient is doing well.

No braver thing than Dr. Riser's action has ever been seen in Leesville. There were about ten children, all small, on the grass in the park, and the horse was running directly for them. Dr. Riser was in no danger where he was, but he saw that some of the children would be crushed unless he saved them, and he did his best, absolutely regardless of the danger to himself. Needless to say, the people whose children were saved by his action will not soon forget him.

Laurens Hospital Opened.

Laurens, June 30.—Special: The Laurens County Hospital has been formally opened for the reception of patients. As announced some weeks ago, this institution is under the management of Miss Julia Irby and her aunt, Miss Jeanette Macfarlane, both of whom are trained nurses of much practical experience in hospitals of the North and East, as well as in Southern institutions. Miss Irby, who is a daughter of the late United States Senator, J. L. Irby, is a graduate of St. Joseph Hospital School for Nurses, Philadelphia, while Miss Macfarlane received her diploma from the West Philadelphia Woman's Hospital. To these two ladies belong the credit for launching the Laurens County Hospital, the first institution of the kind to be established here.

A new building with attractive surroundings, and located accessibly, has been comfortably furnished, and already patients are being received. Generous donations have been made by different individuals of the city and county. Messrs. S. M. and E. H. Wilkes & Co. have furnished one room complete, as has Mrs. Mamie Z. Balentine, and these rooms will be known as the "Wilkes Room" and the "Balentine Room." Dr. Knowlton, of the Knowlton Infirmary, Columbia, has kindly donated an operating table, and Dr. C. B. Earle, of Greenville, made a handsome cash contribution to the institution. A handsome rolling chair has been donated by Mrs. W. E. Lucas, and others of the city have contributed to the equipment of the hospital.

The King's Daughters and the Masons of the city have pledged their support toward the maintenance of the institu-

tion, and other organizations of the city and county, as well as individuals, have indicated that the hospital shall have their hearty support.

Burial of Dr. Easterling.

(The News and Courier, May 27, 1911.)

Bennettsville, May 26.—Special: Dr. Harris R. Easterling, who died at his home a few miles south of Bennettsville Wednesday morning, was buried in Oak Ridge Cemetery yesterday with Masonic honors.

Dr. Easterling was a physician of the old school, being in his eighty-fourth year. After collegiate courses in America he completed his education in Europe. He served through the Confederate War as assistant surgeon, and has resided in this county practically all his life. Dr. Easterling has always been regarded not only as a learned physician, but as a skilled one, and has devoted his life to the service of his fellow man, receiving the gratitude and highest esteem of all who knew him. He leaves a widow and the following children: William C., F. M., Robert J., Aubrey, Henry and Mrs. Albert Pearson.

Dr. James B. Allison.

(The State, Columbia, S. C., May 23, 1911.)

Yorkville, May 21.—Dr. James B. Allison, a prominent and highly respected citizen of Yorkville, died at his residence here Friday afternoon at 4:30, after several months' illness, but only two days' confinement to bed. Dr. Allison always took an interest in the affairs of his town and county, and was 77 years of age. He was prominent in Masonry, having been a Past Master of the A. F. M. and a High Priest of the R. A. M., and a member of Chester Commandery, Knights Templar. Funeral services were held at the First Presbyterian church today, conducted by Rev. J. L. Oates, of the A. R. P. church. Interment was in Rose Hill cemetery with Masonic honors.

Greenwood Hospital.

(The Greenville Daily News, May 26, 1911.)

Greenwood, May 25.—Special: With appropriate ceremonies the first dirt was broken yesterday afternoon for the Greenwood Hospital, which is to cost for the first building around $12,000. The first spade of dirt was turned by Dr. W. B. Willwee, for the physicians. Dr. Willwee is in his eighty-third year, but is hale and hearty. The second spade of dirt was turned by Mrs. E. D. Andrews, president of the Hospital Association, and the third by Mayor K. Baker for the city. The exercises began with prayer by Rev. O. T. Porcher, and closed by a talk and the benediction by Rev. J. B. Green. The contractor, Mr. E. M. Guest, will push the work forward rapidly now.

Dr. Hayne Reports for Duty.

(The News and Courier, May 27, 1911.)

Columbia, May 26.—Special: The new State health officer and secretary of State Board of Health, Dr. J. Adams Hayne, has reported here and the affairs of the office are being turned over to him. He is a former resident of Greenville.

Starting with the Piedmont section next week the Railroad Commission will commence an inspection of the entire railroad system of this State. There are thirty-four lines to be inspected. The Piedmont section will take up the first week.

Dr. Corbett Leases the Magnolia House.

(The Greenville Daily News, May 26, 1911.)

From Mr. James Finlay, Dr. L. G. Corbett has leased the Magnolia House, the building recently moved from the corner of North Main and North streets to a site on Spring street, and will re-

model and equip the building as a thoroughly modern sanitarium for the treatment of addictions and special nervous cases.

The place will be known as Dr. Corbett's Sanitarium, and Dr. Corbett will employ a capable trained assistant and competent attendants.

Dr. T. R. Wilson.

(The Greenville Daily News.)

Greenville has added to her list of medical men Dr. R. W. Wilson, late pathologist and bacteriologist of Baltimore Medical College.

Dr. Wilson graduated in medicine in 1897, and was given the fellowship in pathology and bacteriology, after which he was elected to that chair, which he held for a number of years. Since then he has been located in Maryland as a general practitioner.

Dr. Wilson has offices now in the Vickers-Cauble Building. In connection with Dr. Wilson's practice he will have a laboratory for urinary analysis, blood and stomach examinations and pathological tissues.

Eminent Surgeon Dead.

(The News and Courier, June 7, 1911.)

Philadelphia, June 6.—Dr. Joseph Price, one of the pioneers in abdominal surgery in this country, and the foremost gynecologist here, died late tonight, following an operation for appendicitis.

He performed an operation for appendicitis on a young girl shortly after noon today, and was operated on himself for the same trouble less than four hours later. He was born in Virginia in 1853.

Dr. Williams' Successor Chosen.

(From The News and Courier, May 12, 1911.)

Columbia, May 12.—Special: At a session of the State Board of Health tonight and early this morning, Dr. J. Adams Hayne, of Wyoming, was elected secretary of the board and State health officer, succeeding Dr. C. Fred Williams, of this city, who recently resigned. The position pays $2,250. Dr. Williams resigned because he could not remain at the salary and the board found no way to increase the salary. Dr. Williams will engage in special work on chest diseases.

Dr. Robert Wilson, Jr., chairman of the State Board of Health, came in on the night train from Charleston. The meeting lasted past 1 o'clock today. Dr. Hayne has been in the government service. L. M. G.

Typhus Bacillus Found.

Persistent laboratory work has resulted in the discovery of the micro-organism of typhus fever, one of the most virulent and fatal of the infectious diseases. The cause of the malady had been hitherto unknown. The infectious agent has been proved to exist in the blood of typhus patients, and the virus has been transmitted through a series of monkeys.

"Predjetchensky describes an organism," says the Medical Record, "which he has succeeded in isolating from the blood of these patients. He was able to obtain pure cultures only by inoculating 200 c. c. of bouillon with from 2 to 5 c. c. of blood, drawn between the sixth and ninth days of the disease. It is described as a short, fairly thick bacillus, with rounded ends, occurring singly or in chains.

"The organism was agglutinated by the serum of typhus patients in a dilution of 1-10 in 1 hour, and of 1-40 in 4 hours, while controls with the serum of persons in health or suffering from other diseases showed no agglutination. Mice, dogs and guinea pigs inoculated with a pure culture developed a fever and died, and the bacillus was recovered from their organs.

"The author was able also to cultivate this organism from the sputum of his

patients, and he thinks that its presence here may be the chief factor in the spread of the disease. This bacillus is, apparently, not unlike the one which Ricketts and Walker found in stained blood smears, and which, in their opinion, belonged to the hemorrhagic septicemia group."

Journal of the South Carolina Medical Association

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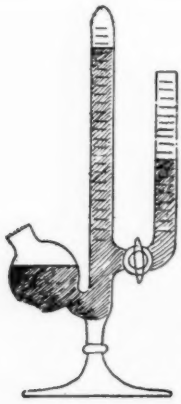

WATCH THE UREA INDEX

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